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Stratigraphy of the Athabasca Group and Alteration Surrounding the Maybelle River Uranium Trend in Alberta

by

Barbara Gail Kupsch ©

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment
of the requirements for the degree of Master of Science

Department of Earth and Atmospheric Science

Edmonton, Alberta

Fall 2003

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Octavian Catuneanu

Karlis Muehlenbachs

Ergun Kuru

September 17, 2003

ABSTRACT

A detailed study of 16 drill cores surrounding the uranium zone in the Maybelle River area, in the southwestern part of the Proterozoic Athabasca Basin in Alberta, was undertaken to better define Athabasca Group sedimentology, stratigraphy and the alteration surrounding the deposit. The Athabasca Group sandstones constitute three third-order sequences: the Fair Point sequence (composed of the upper Fair Point Formation), the Manitou Falls sequence (composed of Manitou Falls c and d members) and the base of the Lazenby Lake-Wolverine Point sequence (composed of the Lazenby Lake Formation). The unconformity-type uranium-polymetallic mineral prospect is located at the base of the Fair Point Formation just above the unconformity and intersecting a graphitic mylonitic fault zone. Alteration features surrounding the uranium zone are similar in characteristic to those associated with deposits in Saskatchewan that have similar host rock alteration and metallogenic signatures. Petrochemical studies on drill core document a polymetallic assemblage of uranium, arsenic, nickel, boron, phosphorus, molybdenum and cobalt, in decreasing order of abundance.

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CHAPTER 1

INTRODUCTION

Unconformity-type uranium deposits are a major source of uranium ore in Canada and Australia. The Athabasca basin, which overlies the Rae Province in the northwest and the Hearne Province to the east (Hoffman, 1990) in northern Saskatchewan and Alberta, is the world's foremost host of the high-grade unconformity-type uranium deposits (Sibbald 1986) and currently produces 30% of the world's supply of uranium. The uranium deposits occupy a range of positions from wholly basement hosted to wholly sediment-hosted, at structurally favorable sites in the interface between the deeply weathered basement and overlying conglomeratic sandstone (Ruzicka, 1997).

The intracratonic Athabasca Basin formed through extensional tectonics (Ramaekers and Hartling, 1978) at about 1700 Ma (Wheatley et al., 1996). The paleotopographic highs on the west and in the vicinity of the Alberta-Saskatchewan border influenced major variations in stratigraphy, such as the restriction of the clay- and volcanic-rich basal Fair Point Formation to the western, Alberta portion of the basin (Ramaekers and Catuneanu, 2001). The early evolution of the basin is presaged by relatively unmetamorphosed "red beds" of the Martin Formation that accumulated in restricted transtensional basins now exposed north of Lake Athabasca near Uranium City (Ramaekers 1981).

Basement rocks are highly deformed having been subjected to medium- to high-grade metamorphism prior to deposition of the Athabasca Group (Annesley et al., 1997). The eastern part of the basin is underlain by metasedimentary gneisses of the Hearne Province mobile zone and interleaved Archean basement (Lewry and Sibbald, 1980). The north-western part of the basin is underlain by rocks of the Rae Province. Intracratonic strike slip motion between these basement domains may have been responsible for the production of a number of oblique sub-basins during initial deposition of the Athabasca Group at about 1750 Ma (Ramaekers, 1990). Diabase dikes which cut the group are part of the MacKenzie swarm (ca 1270 Ma; Ross, 2000).

Previous understanding of the stratigraphy and sedimentology of the Athabasca Group stems from the work of Fahrig (1961) and Ramaekers (1981, 1990 and papers cited therein), with recent contributions by Long et al. (2000) and Yeo et al. (2000, 2001, 2002). Ramaekers examined thousands of outcrops and hundreds of meters of core from the basin and was able to establish that many of the constituent formations were fluvial, with essentially unidirectional paleocurrent trends regionally outlining a series of interacting fan-shaped to sinuous distributary patterns, which in part straddle basement irregularities. Ramaekers' studies preceded the introduction of concepts on the sequence stratigraphy of non-marine basins and dealt only superficially with the types of fluvial systems involved. Wilson (1985) completed the first regional stratigraphic interpretation of the Alberta portion of the Athabasca Basin; however, he did not attempt a stratigraphic breakdown of the individual formations.

22 uranium deposits have been discovered in Saskatchewan within the Athabasca basin which contain on average more than 500 million kilograms of uranium at grades ranging from 0.3 to 15 percent U_3O_8 (Wheatley et al., 1996). Initial discoveries at Rabbit Lake in 1968 and Cluff Lake in 1969, and subsequent discoveries at Key Lake, Midwest

Lake, and Cigar Lake all have similar unconformity-type settings. The initial discoveries were found through surficial indicators, such as radioactive boulders, strong geochemical anomalies in the surrounding lakes and swamps, and geophysical signatures (Wheatley et al., 1996). After these initial discoveries, an exploration model was developed that targeted electromagnetic conductors, based on the associated underlying graphitic schists with strong electro-magnetic signatures (Ray, 1976; Kirchner and Tan, 1977). Until discovery of the P2 North Deposit (McArthur River Mine; McGill et al., 1993), the exploration focus has been on targets within 500 meters of the surface, making them accessible and economically attractive (Fayek and Kyser, 1997). Companies are now enhancing their exploration technology to include deeper deposits such as McArthur River whose exceptional size and grade are economic at greater depths.

The high-grade uranium deposits within the Athabasca Basin are associated with the fundamental unconformity between the essentially flat-lying Athabasca Group sandstones and the underlying Paleoproterozoic metamorphic and igneous basement rocks of the Hearne Province. The formation of these high-grade unconformity-type uranium deposits resulted from diagenetic-hydrothermal basement-sandstone fluid interaction (e.g. Hoeve and Sibbald, 1976, 1978; Hoeve et al., 1980; Pagel et al., 1980; Hoeve and Quirt, 1984, 1987). The locations of these deposits are lithologically and structurally controlled by the sub-Athabasca unconformity and the basement fault and fracture zones, which are localized in graphitic pelitic gneisses that, in the Wollaston and Mudjatic basement zones, generally flank structurally competent Archean granitoid domes (Quirt, 1989). Deposit models developed for the Saskatchewan unconformity-type uranium deposits, show similar metallogenic and host rock alteration patterns (Quirt, 1997; Ruzicka, 1997).

This thesis is an essential component of a larger project entitled EXTECH IV, Athabasca Uranium Multidisciplinary Study, which is an integrated partnership between Cameco Corporation, COGEMA Resources, academia (including University of Alberta, University of Saskatchewan and Laurentian University), the Geological Survey of Canada, Saskatchewan Industry and Resources, and the Alberta Geological Survey (Jefferson and Delaney, 2001). EXTECH IV (Exploration Science and Technology initiative) aims to enhance the 4-dimensional geoscience knowledge base of the 1.7 billion year-old Athabasca Basin and to develop new exploration methods for deep uranium deposits that are located at or near its basal unconformity with basement gneisses, thereby sustaining and enhancing the environmentally sound development of this mature mining camp. Sub-projects of EXTECH IV include: regional and high-resolution seismic reflection, multiparameter borehole geophysics, bitumens and hydrocarbons, regional and detailed stratigraphy and sedimentology, regional and detailed basement geology, gamma ray geophysics and quaternary geology, clay mineralogy, audiomagnetotellurics, high-resolution gravity, and geochronology.

Renewed interest in the Athabasca Basin, due to the creation of EXTECH IV, has produced many published works on the stratigraphy both on the local and regional scale. Regional stratigraphic studies include examination of the eastern Athabasca Basin stratigraphy (Jefferson et al., 2001) and stratigraphic examination of the south-central to south-western Athabasca Basin (Yeo et al., 2001). Preliminary work regarding the revised regional stratigraphy and sedimentology of the Athabasca Basin in Alberta has been published by Ramaekers et al. (2001), with a re-examination of the Manitou Falls

Formation discussed in greater detail by Yeo et al. (2002). Detailed stratigraphy and sedimentology of the Athabasca Group at, and near selective uranium camps and prospects has been done by Collier and Yeo (2001) at Deilmann Pit, Key Lake; Collier et al. (2001) and Collier (2002) at Shea Creek; Bernier et al. (2001) and Bernier (2002) at McArthur River; and Long (2001) at McClean Lake and Key Lake.

Early uranium discoveries were concentrated on the eastern edge of the Athabasca Basin (e.g. Rabbit Lake) in the Ahenakew deposystem. The majority of drill holes in the basin are thus located in the eastern part of the Athabasca Basin, although the stratigraphic nomenclature developed by Ramaekers (1990) is based on deep drill holes distributed across the basin. Ramaekers recognized that stratigraphic differences are very subtle, and therefore restricted his formal nomenclature to the formational member, and left the member subdivisions as informal lithologic entities pending further work. Early in the EXTECH IV project, the emphasis on member descriptions was based on extensive work in the Ahenikew Deposystem that overlies all of the major uranium deposits in the eastern Athabasca Basin (see Yeo et al. 2002). The tendency was to try to find exactly the same characteristics in other deposystems, which caused problems because of the natural lateral variations in this fluvial basin. The resulting philosophical differences in unit definition (e.g. Bernier, 2002; Collier, 2002, Yeo et al., 2002) are extended to the less explored western Athabasca Basin of northeastern Alberta, where stratigraphic terminology has been applied in different ways by different workers, resulting in some confusion. This detailed study of the Maybelle River area provides consistent local definitions of the formations and their members and suggests how these relate to the basin-wide stratigraphy.

All of the uranium discoveries to date are located in the Saskatchewan part of the basin with the exception of the Maybelle River uraniferous zone in Alberta that was discovered by a Uranerz Exploration and Mining Limited drilling program in 1986 (Orr, 1989). One special aspect of the Maybelle River area is the regional restriction of the Fair Point Formation to the western Athabasca Basin, constituting a westward-thickening clastic wedge of clay rich, poorly sorted pebbly sandstone located between the Manitou Falls Formation and basement (Ramaekers, 1990). The implications for uranium mineralization under this unique stratigraphic combination are not fully understood. In the central and eastern Athabasca Basin, unconformity-related uranium deposits are located at the contact between permeable units of the basal Manitou Falls Formation of the Athabasca Group and the underlying basement gneisses and schists. In contrast, the Maybelle River high-grade intersections (MR-39, 5 meters @ 21% U_3O_8; Orr, 1989) are at the base of the Fair Point Formation, rather than the Manitou Falls Formation. This indicates that the basal unconformity of the Athabasca Basin is more important for prospecting than internal unconformities. Nevertheless, detailed documentation of stratigraphic relationships and relevant petrology will decrease uncertainty and provide insights regarding extension of the Saskatchewan Athabasca exploration models to the western Athabasca Basin. In particular, comparisons of stratigraphic settings with the relatively near by Cluff Lake and Shea Creek areas are relevant to Albertan exploration models.

Comprehensive knowledge of fluvial architecture, and the structure and alteration of sandstone and basement host rocks may allow modeling of hyrological flow anisotropy and its influence on uranium ore emplacement. Studies of the Athabasca Basin fluvial systems and their petrogenesis will significantly advance the generic understanding of fluvial styles before the onset of vascular vegetation and the specific diagenetic-alteration history of the Basin. An understanding of fluvial architecture is also fundamental to interpreting stratigraphic variations and the potential for erecting a regional correlation framework in aid of high-resolution seismic reflection surveys, borehole geophysics, diagenetic and hydrothermal alteration studies and, ultimately, mineral exploration.

Detailed correlation and laboratory analysis of strata in inclined drill core from Maybelle River trend is the focus of this M.Sc. thesis. The goal of this research is to develop a better understanding of Athabasca stratigraphy, sedimentology, alteration and petrology and their roles in the localization of uranium mineralization in the Maybelle River area. Primary logs of detailed stratigraphy and sedimentology include systematic descriptions of primary sedimentary lithology, structure, alteration, and uranium minerals. Comprehensive knowledge of architecture, structure and alteration may allow modeling of flow anisotropy and its influence on uranium ore emplacement. By logging closely spaced drill holes along the Maybelle River trend, a detailed facies – stratigraphic – structural – alteration section is constructed. This information helps to define regional to detailed sequence stratigraphy and to understand the flow and focusing of uranium bearing fluids.

The density of drill holes on the Maybelle River trend permits close examination of vertical and lateral facies and alteration relationships. Strategically chosen diamond drill holes, including the two that intersect high-grade uraninite, were logged to provide long- and cross-sectional constraints on stratigraphy and mineralization of the Maybelle River trend. Sixteen drill holes were logged: MR-29, -34, -35, -39, -40, -41, -43, -45, -46, -47, -48, -50, -53, -60, -80 and -82. These holes were chosen to attain better coverage around the deposit in order to map the extent of the alteration halo and the stratigraphy characterized by the Athabasca Group. In total, 37 parameters were captured, including the EXTECH IV key parameters (Yeo et al., 2001), plus several parameters that detail structure and alteration. The EXTECH IV key logging parameters were established by Yeo et al. (2001) to bring some consistency to the stratigraphic framework in the basin. With the use of consistent parameters being recorded in a consistent way in all parts of the basin, a systematic methodology was developed to improve the definition of major stratigraphic units locally within the Athabasca Group. In addition, the consistency helped to define the lateral extent and regional correlation of the units between widely separated areas of the basin. Because of poor exposure, stratigraphic units cannot be physically traced in outcrop, except for limited exposures in ephemeral open pit mines. Stratigraphic units are therefore described based on their logged characteristics, with interpretation of sedimentary environments based on vertical and lateral variations. Detailed bed-by-bed facies logging helps interpret the depositional environments for each formation and member.

Samples were collected from archived drill core and were analysed in thin section, by whole rock and trace element geochemistry, and by a PIMA-II instrument on loan from COGEMA Resources Inc. The PIMA is a portable, a short-wave infrared (SWIR) spectrometer manufactured by Integrated Spectronics Ltd. that provides fast qualitative to semi-quantitative clay mineral analyses on small hand samples in the field, and is particularly useful in distinguishing between the kaolinite-group polytypes of kaolinite and dickite (see discussion and further references in Percival et al., 2002, that follows up a major regional clay mineral study by Wasyliuk, 2002). The lithogeochemical and PIMA studies, along with host rock alteration as seen in drill core, help define the metallogenic characteristics and extent of the alteration halo surrounding unconformity uranium prospects.

The basement rocks were logged to characterize units that are spatially associated with the Maybelle prospect, the extent of alteration in the basement, and to document structures that may have controlled the deposition of uranium.

The limited thickness of the Athabasca Group sandstones in a large portion of Alberta makes this region favorable for future exploration. The regional restriction of the Fair Point Formation to the western portion of the Athabasca Basin is one factor that may have deterred mining companies from exploring in Alberta. Unconformity-type uranium deposits can occur under this unique stratigraphic condition as shown by the discovery at Maybelle River. A genetic model for the Maybelle River uranium zone is developed from core studies of host rock alteration and metallogenesis characteristics and their respective positions within the individual formations. Similarities between uranium mineralization in the Maybelle River area and that in the Saskatchewan part of the basin are confirmed with this depositional model. Future exploration within Alberta will be aided with the development of the Maybelle River genetic model.

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CHAPTER 2

Detailed Stratigraphy and Lithofacies Analysis of the Athabasca Group in the Maybelle River area, Athabasca Basin, Alberta

Introduction

The Proterozoic Athabasca Basin is host to some of the world's largest and richest known uranium deposits in northern Saskatchewan (Fig. 2-1). Initial discoveries at Rabbit Lake (1968) and Cluff Lake (1969) on the eastern edge of the Athabasca Basin stimulated activity in Saskatchewan, and led to further discoveries and to the development of stratigraphic nomenclature (Ramaekers, 1990) which was applied basin wide. The discovery of the mineralization in the Maybelle River area of Alberta by Uranerz Exploration and Mining Limited in 1986 (Orr, 1989) led to renewed efforts to understand the stratigraphy and sedimentology of the western Athabasca Basin in Alberta by the EXTECH IV project (see below).

Previous understanding of the stratigraphy and sedimentology of the Athabasca Group stems from the work of Fahrig (1961) and Ramaekers (1981, 1990 and papers cited therein). Wilson (1985) completed the first regional stratigraphic interpretation of the Alberta portion of the Athabasca Basin, but did not attempt a stratigraphic breakdown of the individual formations. Currently, renewed interests in the Athabasca Basin due to the EXTECH IV project (see below), has produced many published works on the stratigraphy on a local scale near selective uranium camps and prospects (Bernier et al., 2001; Collier and Yeo, 2001; Collier et al., 2001; Long, 2001; Bernier, 2002; Collier, 2002; Kupsch and Catuneanu, 2002), and on a regional scale (Jefferson et al., 2001; Ramaekers, 2001; Yeo et al., 2001; Yeo et al., 2002a). Although there have been numerous publications detailing the stratigraphy of each area, the stratigraphic picture of the Athabasca Basin has not necessarily become any clearer.

This thesis is part of a larger project entitled EXTECH IV, Athabasca Uranium Multidisciplinary Study, which is an integrated partnership between Cameco Corporation, COGEMA Resources, academia (including University of Alberta and the universities of Saskatchewan and Laurentian University), the Geological Survey of Canada, the Saskatchewan Geological Survey, and the Alberta Geological Survey (Jefferson and Delaney, 2001). EXTECH IV aims to improve our understanding of the Athabasca Basin and its uranium deposits, and to develop new technologies and strategies for exploration in the basin.

This paper summarizes the results of work on drill core from the Maybelle River area, Alberta, conducted at the Mineral Core Research Facility (MCRF) in Edmonton in 2002-2003. The Maybelle River area is located approximately 200 km northeast of Fort McMurray, Alberta (Fig. 2-2). One goal of this research is to develop a better understanding of Athabasca stratigraphy and sedimentology in the Maybelle River area. A major difference between the Maybelle River area and other uranium deposits of the Athabasca Basin is that the Maybelle River prospect is hosted at the interface between basement gneisses and the unconformably overlying Fair Point Formation, whereas at the major known deposits the interface is with the Manitou Falls Formation. The Fair Point Formation is unconformably overlain by the Manitou Falls Formation and is regionally

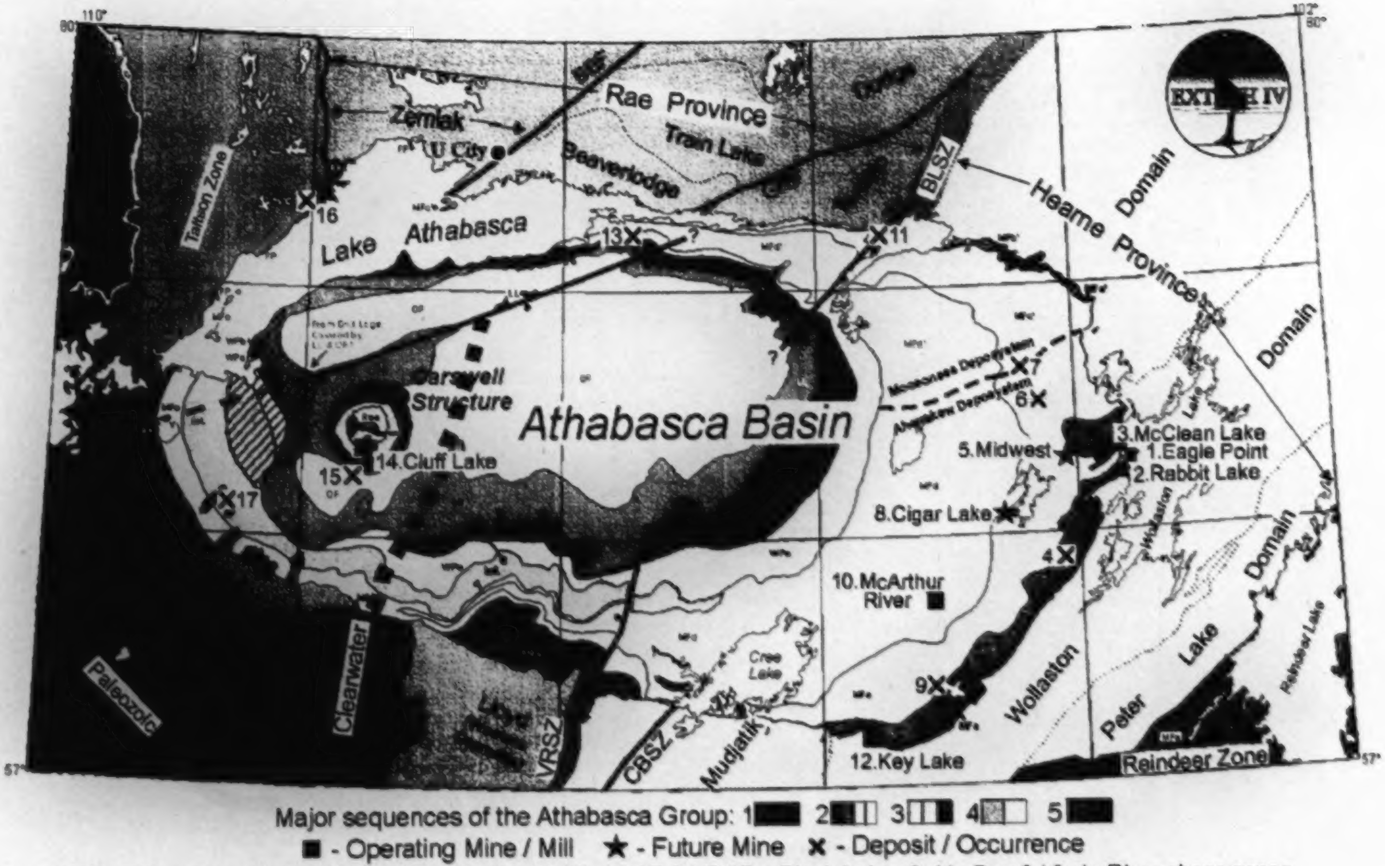
110°
102°
60°
57°
EXTECH IV
Rae Province
Train Lake
Zemlak
U City
Beaverlodge
BBF
GRF
BLSZ
Hearne Province
Domain
Domain
Tantato Zone
16
Lake Athabasca
13
11
Carswell Structure
Athabasca Basin
14.Cluff Lake
15
17
7
6
3.McClean Lake
1.Eagle Point
2.Rabbit Lake
5.Midwest
8.Cigar Lake
4
10.McArthur River
9
12.Key Lake
Cree Lake
Wollaston
Domain
Peter Lake
Reindeer Lake
Reindeer Zone
Mudjatik
CBSZ
VRSZ
Lloyd
Clearwater
Paleozoic
Major sequences of the Athabasca Group: 1 ■ 2 ▨ 3 ▯ 4 ▨ 5 ■
■ - Operating Mine / Mill ★ - Future Mine ✖ - Deposit / Occurrence
BBF & GRF = Grease River & Black Bay faults; BLSZ, CBSZ & VRSZ = Black Lake, Cable Bay & Virgin River shear zones

Fig. 2-1. Location map of the Athabasca Basin including the Athabasca Group formations and uranium deposit locations. Maybelle River uraniferous zone is symbolized by the number 17 occurrence.

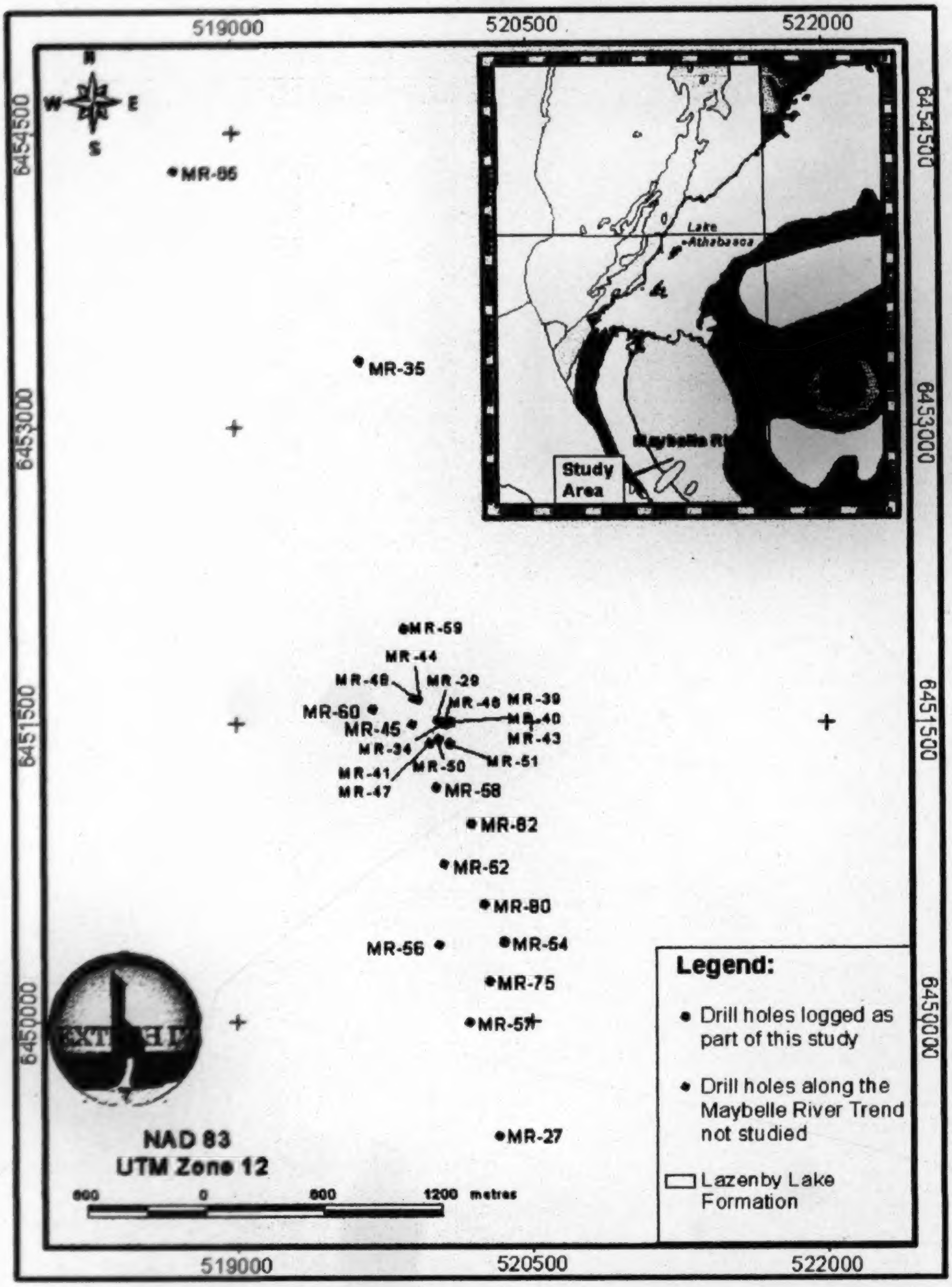
519000
520500
522000
6454500
6453000
6451500
6450000
N
W
E
S
MR-65
MR-35
Lake Athabasca
Maybelle River
Study Area
MR-59
MR-44
MR-49
MR-29
MR-60
MR-45
MR-48
MR-39
MR-40
MR-43
MR-34
MR-50
MR-51
MR-41
MR-47
MR-58
MR-82
MR-62
MR-80
MR-56
MR-54
MR-75
MR-57
MR-27
NAD 83
UTM Zone 12
600
0
600
1200 metres
Legend:
Drill holes logged as part of this study
Drill holes along the Maybelle River Trend not studied
Lazenby Lake Formation

Fig. 2-2. A map of the Maybelle River area showing the location of drill holes logged as part of this study. The Lazenby Lake Formation is represented by the orange background and the lakes are represented by the white areas.

restricted to the western Athabasca Basin (Ramaekers, 1990). A second goal of this research is therefore to assess whether or not stratigraphic factors such as the differences between the Fair Point and Manitou Falls formations carry any implications for uranium mineralization in the unique stratigraphic situation of northern Alberta.

Geological setting

The Athabasca Basin is filled by the Athabasca Group of relatively undeformed and flat-lying, mainly fluviatile clastic strata. The Athabasca Group unconformably overlies crystalline basement rocks of the Rae Province in the northwest and the Hearne Province to the east (Hoffman, 1990) (Fig. 2-1). Prior to deposition of the Athabasca Group, the Archean-Paleoproterozoic crystalline basement rocks were uplifted and subjected to intensive erosion (Ramaekers, 1990) leaving a weathered profile or regolith with a 1.75 to 1.78 Ga retrograde metamorphic age (Annesley et al., 1997). The fluviatile sands and gravels of the Athabasca Group were deposited in the intracratonic Athabasca Basin that formed through extensional tectonics (Ramaekers and Hartling, 1978) at about 1700 Ma (Wheatley et al., 1996). A maximum age constraint for the Athabasca Group is approximately 1.66 Ga provided by a detrital ziron suite collected from the Wolverine Point Formation (Rainbird et al., 2002). The thickness of the Athabasca Group was originally up to 5 km (Pagel et al., 1980), but erosion has reduced it to just over 2200 m (Sibbald and Quirt, 1987).

The Athabasca Basin was divided by Ramaekers (1990) into three northeast trending sub-basins separated by northeast trending highs, shown by stratigraphic (Ramaekers, 1979, 1980) and seismic work (Hobson and MacAuley, 1969). The three sub-basins, from east to west respectively are the Cree, Mirror, and Jackfish Basin, with the Dufferin High separating the Cree and Mirror Basins, and the Patterson High separating the Mirror and Jackfish Basins. Seven deposystems recognized in the Athabasca Basin are the Fidler, Bourassa, McLeod, Reilly, Moosonees, Ahenakew, and Karras deposystems (Ramaekers, 1976, 1978a, 1978b; Ramaekers et al., 2001; Yeo et al., 2002).

The Athabasca Group was divided into two subgroups: the William River Subgroup and the overlying Points Lake Subgroup (Ramaekers, 1980, 1990). The William River Subgroup now comprises the Fair Point, Manitou Falls, Lazenby Lake, Wolverine Point, Locker Lake and Otherside formations (Ramaekers et al., 2001). The Points Lake Subgroup consists of the Douglas and Carswell formations that are present only in the Carswell structure. Most formations can be further subdivided into members, and this process is under discussion by members of EXTECH IV's Stratigraphy Sub-project (e.g. Yeo et al., 2002a), who have recognized the difficulties of regional correlations because of lateral lithologic changes in this largely fluvial stratigraphic pile.

Methodology

The focus of this study was to log in detail core from 16 drill holes and to study selected aspects of the Athabasca Group at and near the Maybelle River uraniferous zone (Fig. 2-2). Drill holes were chosen with tight spacing nearest to and including the mineralized drill hole MR-39, with the other 15 holes radiating outward up to 2 km.

These holes were chosen to get better coverage around the prospect in order to map the extent of the alteration halo and the characteristics of Athabasca Group stratigraphy in this area. Pictures of core showing stratigraphic as well as alteration features are listed in Appendix 1. The Athabasca Group strata were logged on a metre-by-metre scale on a Palm© hand-held computer (PDA) that was programmed with Microsoft Access database software (Appendix 2). In total, 37 parameters were captured (Table 2-1), which included the Jefferson et al. (2001) parameters, plus several additional parameters listed in Kupsch and Catuneanu (2002).

This paper presents preliminary results of one representative drill log using selected parameters: maximum transported grain size (MTG), percent of grains greater than 2 mm (%>2mm), percent sum of cross-section thickness of all intraclasts measured individually (% intraclasts), percent of mud size particles (%M), percent of silt and very fine grained size particles (%F), and percent conglomerate beds greater than 2 cm thick (%C) (Figure 2-3). All sixteen drill holes were plotted using these parameters (Appendix 3). These parameters were chosen to be consistent with the preliminary stratigraphic work being done in the rest of the Athabasca Basin (e.g., Bernier et al., 2001; Collier et al., 2001; Jefferson et al., 2001; Yeo et al., 2001).

Detailed bed-by-bed logging was also completed for 3 drill holes (MR-35, -47, and -60) in 3-m thick mini-reference sections (Appendix 4). Primary sedimentary structures and textures are listed in Table 2-2. Detailed logs were made of the base and middle of the Lazenby Lake Formation, the base, middle and upper Manitou Falls Formation, and all of the Fair Point Formation. The latter was targeted for complete logging because it immediately overlies the Maybelle River prospect and there was a relative lack of knowledge of this formation.

Eighty eight thin sections, representing Lazenby Lake, Manitou Falls, and Fair Point formations were made from samples collected from four drill holes (MR-35, -39, -60, and -80) with down hole sample spacing from 5-10 m in Lazenby Lake Formation, 2 to 20 m in Manitou Falls Formation, and 4 to 10 m in Fair Point Formation (Appendix 5). Sample spacing tightened closer to the formation boundaries. These four drill holes cover the extent of the thesis area. Each thin section was examined for sedimentary textures, structures and mineralogy.

Stratigraphy of the Athabasca Group in the Maybelle River area

Three formations of the William River Sub-Group of the Athabasca Group underlie the Maybelle River area: the Fair Point, Manitou Falls and Lazenby Lake (Table 2-3).

Fair Point Formation Stratigraphy

The Fair Point Formation (FP) is restricted to the western Athabasca Basin within the Jackfish sub-basin deposited in the Fidler deposystem. It unconformably overlies granitoid gneisses of the Wylie Lake suite and metasediments of the Martin Group (Wilson, 1985). The contact between the FP and the overlying Manitou Falls Formation is regionally unconformable, and easily recognized in core as a sharp contact between underlying poorly sorted, massive appearing, coarse grained sandstone with abundant

Table 2-1. Logging parameters used for digital logging of Athabasca Group drill core on the Alberta side of the western Athabasca Basin (after Jefferson et al., 2001).

Parameter	Variables (as recorded)
DrillHoleId	AGS ID (e.g. MR-35)
DepthFrom (m)	Number (m)
DepthTo (m)	Number (m)
%CoreRecovery	Number (%)
MatrixClay	n = not visible or not applicable (i.e. all mudstone), t = trace, m = minor to moderate, a = abundant
CLR_Darkness	d = dark, m = moderate, p = pale, w = white
CLR_Colour	Bk = Black, Bn = Brown, BR = Black-Red, C = Cream, Gn = Green, Gy = Grey, R = Red (bright), M = Maroon (brick), O = Orange, P = Pink, Pu=Purple, W = White, Y = Yellow, YG = Yellow-Grey, etc.
CLR_Pattern	B (Bedding related), F (Fracture related e.g: Gr, Fd, etc.), G (Grain-size related), Ld (Liesegang dark), Lm (Lies, medium), Lb (Lies, bright), M (Mottled, e.g. Mry), P (Patchy-dispersed), S (Spots, e.g. Srw = outside red, inside white), U (Uniform).
IC_Friability	c (competent, hard to break), e (competent, breaks easily), f (friable, grains rub off at edges), v (very friable), u (unconsolidated); For Mudstones: s (soft, fingernail gouges), h (hard, fingernail cannot scratch)
IC_Silicification	n (none), w (weak), m (moderate, sparkles), s (strong, tombstone)
TGS_10% (coarse tail)	b (>64mm), pv (32-64mm), pc (16-32), pm (8-16), ps (4-8), g (2-4 mm), v (1-2), c (0.5-1), m (0.25-0.5), f (0.13-0.25), vf (0.06-0.13), s (silt), y (clay) (plot # = mid size class)
TGS_50% (median)	b (>64mm), pv (32), pc (16), pm (8), ps (4), g (2), v (1), c (0.5), m (0.25), f (0.13), vf (0.06), s (silt), y (clay) (plot # = mid size class)
TGS_90% (fine tail)	b (>64mm), pv (32), pc (16), pm (8), ps (4), g (2), v (1), c (0.5), m (0.25), f (0.13), vf (0.06), s (silt), y (clay) (plotting # = middle of size class)
TGS_MTG	Number (mm) = Maximum Transported Grain-size in mm
TGS_%>2mm	Number (%) = Vol % of grains greater than 2 mm in diameter
MBP_%C	Number (%) in a 1-m interval = aggregate thickness of beds of C >2cm
MBP_%F	Number (%) in a 1-m interval = aggregate thickness of all beds of silt and very fine grained no matter how thin
MBP_%M	Number (%)in a 1-m interval = aggregate thickness of all beds of clay size no matter how thin.
PSS_G	Primary Sedimentary Structure (PSS) in Granule & coarser conglomerate: D (diamicton / matrix supp), G1 (G, 1-grain-thick layer), Gh (hori-zontally bedded), Gi (intraf conglo), Gl (low < Xbeds), Gm (massive), Gp (planar Xbeds), Gt (trough Xbeds), Gv (indistinct layering), Gx (Xbeds unspecified), n (N/A)
PSS_S	PSS in Sand, medium-coarse: Sg (gravelly sand), Sh (horizontal bedding), Shg (Sh+Sg), Si (intraf cgl), Sl (low < Xbeds), Sm (massive), Sp (planar Xbeds), Sr (ripple Xlam. <5cm), Sse (intracl. in scour), Sss (sand in scour), Sxc (condensed Xbeds <5cm+g), St (trough Xbeds), Sv (indistinct layering), Sx (Xbeds unspec), n (N/A)
PSS_F	PSS in Sand, fine to very fine: Fh (horizontal lamination), Fhs/g (Fh + Sand/Grav), Fl (low < Xbeds), Fm (massive), Fp (planar Xbeds), Fr (ripple X-lam. <5cm), Fse (intracl. in scour), Fss (sand in scour), Fxc (condensed Xbeds <5cm + g), Ft (trough Xbeds), Fv (indistinct layering), Fx (Xbeds unspecif.), n (N/A)
PSS_M	PSS in Mud (silt & clay): Mh (horizontal lamination), Mhs/g (Mh + Sand/Gravel), Ml (low < Xbeds), Mm (massive), Mr (ripple X-lam. <5cm), Mse (intracl. in scour), Mss (sand in scour), Mv (indistinct layering), Fx (Xbeds unspecified), n (N/A).
TecFractures/m	Number
IntraclastAggregThick	Number (mm) = sum of cross-section thicknesses of all intraclasts measured individually.
IntraclastType	Choose most abundant = w (wads, >3mm thick), d (dollar, <3mm thick & >15mm wide), p (penny --small ,thin), g (grain), b (accumulation of clast or matrix supported intraclasts)
AM_Colour	Bk (Black), Bn (Brown), BR (Black-Red), Gn (Green), Gy (Grey), R (Red, bright), M (Maroon, brick), Y (Yellow), etc., n (n/a)
AM_Distribution	L (in laminae and X-laminae), D (disseminated), n (n/a).
SSS_2ndStructures	b (ball and pillow), c (convolute bedding), d (clastic dykes), f (flame structure), l (load casts), m (sandfilled mudcracks), o (overturned / oversteepened Xlam), pc (pedogenic carbonates), pi (pedogenic pisolites), ps (pedogenic silica), r (scour), sy (syneresis cracks), sl (slump, sed fault), s2 (o'steep multiple beds), u (understeep).
Hydroc_Type	p (pyrobitumen), t (tar), h (heavy oil), l (light oil), o (odour), n (n/a).
Hydroc_Distribution	b (buttons, f (along fractures), il (intergranular, saturated), n (n/a)
Hydroc_Saturation	Number (%)
TectonicStructureType	bc (crackle breccia), br (fault conglomerate), bx (brecci), fd (dip-slip fault), fr (fracture, no mov't), fs (strike-slip fault), ft (fault, unspec), su (uncemented sandy gouge), sc (cemented sandy gouge), n (n/a).
TectonicStructure_Angle to core axis	Number
TectonicStructure_Fracture	a (apatite), c (calcite), d (dolomite), s (siderite), h (hematite), l (limonite), m (marcasite), py

Fill Cemement	(pyrite), pi (pitchblende), td (dravite), ts (schorl), y (clay), g (gouge), sc (gouge, sandy cemented), su (gouge, sandy uncemented), qc (chalcedony), qd (quartz, drusy), qo (quartz overgrowths), o (other), f (feldspar, overgrowths), n (none)
TectonicStructure_Fracture Fill Thickness	Number
Replacement_Type	b (botryoidal), ps (pseudomorphing), ms (massive), mn (manto, stratabound), v (vuggy), pa (patchy), d (disseminated), l (linings of voids), fi (replace rock within ft zone), fo (replace ft zone & wall rock)
Replacement_New Mineral	a (apatite), c (calcite), d (dolomite), s (siderite), h (hematite), l (limonite), m (marcasite), py (pyrite), pi (pitchblende), td (dravite), ts (schorl), y (clay), g (gouge), sc (gouge, sandy cemented), su (gouge, sandy uncemented), qc (chalcedony), qd (quartz, drusy), qo (quartz overgrowths), o (other), f (feldspar, overgrowths), n (none)
Replacement_%	Number (%)
Remarks	Alphanumeric

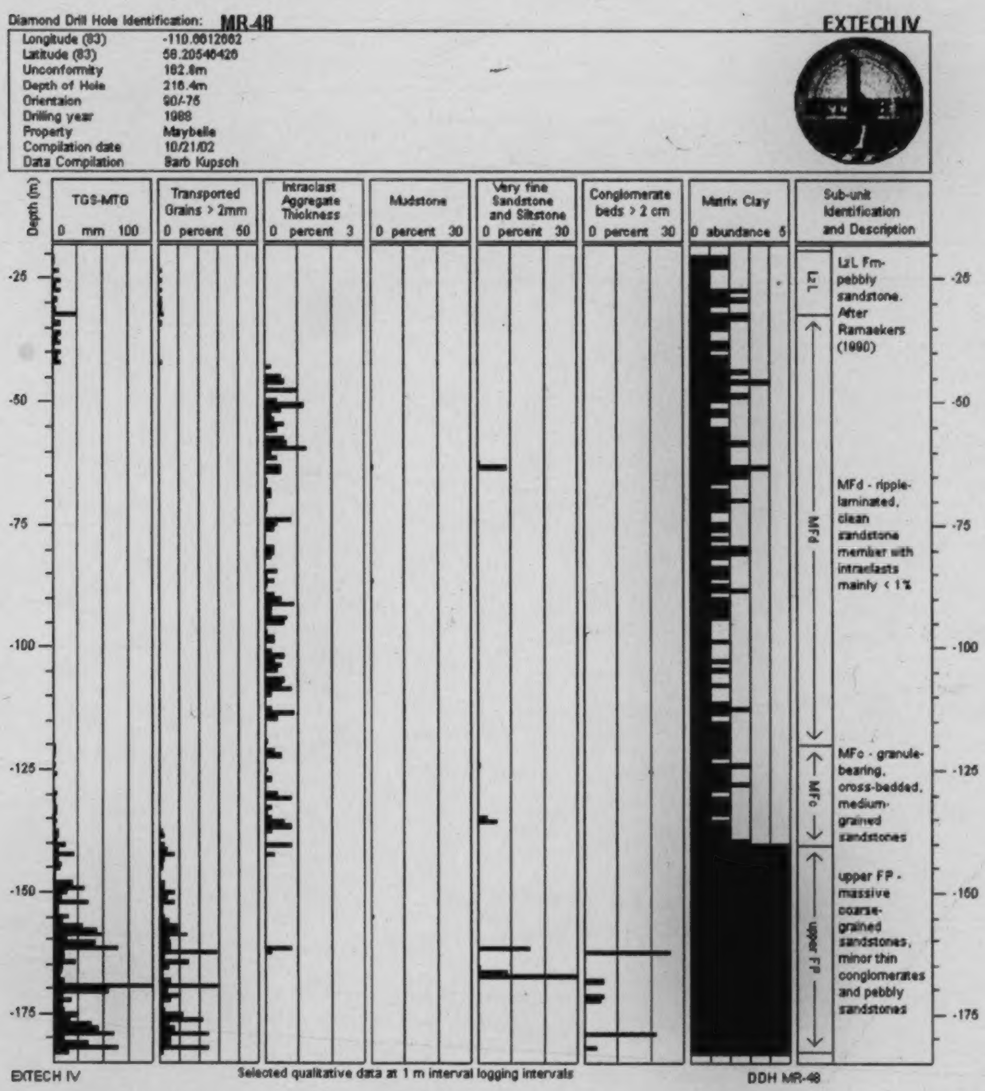

Fig. 2-3. Plot of MR-48 from the Maybelle River area illustrating six parameters and the subdivisions of the formations occurring in this area. Location is shown on Figure 2-2.

Table 2-2. Classification of primary sedimentary structures used in this study (after Miall, 1977, 1996).

Facies code	**Facies and sedimentary structures**
Gmm	Matrix-supported, massive gravel
Gmg	Matrix-supported gravel, normal grading
G1	One-clast thick pebble or granule layer
Pm	Massive pebbly sandstone
Ph	Crudely horizontally bedded pebbly sandstone
Sx	Cross-bedded sandstone
Sr	Ripple-laminated (<5 cm amplitude) sandstone
Sl	Sandstone with low angle (<5°) cross-beds
Sm	Massive sandstone

Table 2-3. Sequences and lithofacies associations recognized in the Maybelle River area. Previously used stratigraphic subdivision used by Ramaekers et al. (2001) are indicated.

Sequences	Unit (this paper)	Abbr.	Litho-facies Assoc.	Lithology	Ramaekers et al. (2001)
3	Lazenby Lake	LzL	4	fine to medium grained, ripple-laminated, pebble-bearing sandstone with convolute bedding	LzL
2	Manitou Falls d	MFd	3	medium grained, ripple-laminated sandstones with abundant clay intraclasts	MFc
	Manitou Falls c	MFc	2	granule-bearing, medium- to coarse-grained, ripple-laminated to cross-bedded sandstones	
1	Upper Fair Point	FPu	1	coarse-grained, crudely-bedded to massive sandstones, minor pebbly sandstones and thin conglomerates	FPb2 and FPc

interstitial clay and overlying well sorted, coarse- to fine-grained sandstone with well defined bedding and trace amounts of interstitial clay.

The Fair Point Formation has been subdivided into three subunits (FPa, FPb, and FPc) by Ramaekers et al. (2001) and Ramaekers (2003b), of which only two are recognized in the Maybelle River study area. The lowermost, FPa member is subdivided into two subunits which are made up of FPa1, a mudstone-rich subunit characterized by abundant siltstones interbedded with minor conglomerates, pebbly sandstone and sandstone beds, and FPa2, a sandier subunit. The overlying FPb member is divided into two subunits made up of FPb1, characterized by interbedded massive to cross-bedded conglomerates and sandstones with common horizontal to low-angled-cross bedding, and FPb2, characterized by coarse grained pebbly sandstones, thin conglomerates, and sandstone beds with common horizontal to low-angle cross bedding with an MTG commonly greater than 50 mm in diameter. The FPc member is characterized by sandstones with subordinate pebbly sandstones and thin conglomerates, with common horizontal to low-angled-cross bedding and a MTG less than 50 mm in diameter. The contacts between all of the subunits are gradational.

A main part of Ramaekers (2001) and Ramaekers et al. (2003b) subdivision scheme is based on MTG, which is typically independent of lithofacies change. An isolated clast greater than 50 mm in diameter would be classified as FPb, which may disregard the lithofacies or primary lithofacies association that it may be in. The lithofacies changes in the Maybelle River area do not correlate with the MTG, as a result, a lithostratigraphic revision of the Fair Point Formation is proposed in this paper.

The Fair Point Formation within the region around Maybelle River area is here subdivided into the lower Fair Point Formation (FPl) and the upper Fair Point Formation (FPu) as defined by regional studies of Post focused in and around the Maybelle River area in 2002-2003 at the AGS (Post, pers. commun., 2003) (Table 2-3). The FPl member consists of thick conglomerate and pebbly sandstone beds with subordinate sandstones and local siltstones which correspond to Ramaekers et al. (2001) and Ramaekers (2003b) FPa1, FPa2, FPb1, and FPb2. The FPu consists of massive to crudely cross bedded medium- to coarse-grained sandstones with interbedded thin conglomerates and pebbly sandstones, and isolated pebbles which broadly corresponds to Ramaekers et al. (2001) and Ramaekers (2003b) FPc. The contact between the two is gradational and defined by the last thick conglomerate bed overlain by predominantly massive to crudely cross-bedded, medium- to coarse-grained sandstones with minor thin conglomerate beds, generally less than 15 cm thick (Post, pers. commun., 2003).

The Fair Point Formation in the Maybelle River study area is composed entirely of FPu (Table 2-3). It ranges in thickness from 30 m to 50 m in the study area and thickens slightly to the north (Fig. 2-4). It thins along the W-E section as intersected by the five eastern drill holes (Fig. 2-4).

Manitou Falls Formation Stratigraphy

The Manitou Falls Formation (MF) was originally divided into four members of MFa, MFb, MFc and MFd, based on outcrops and drill hole sections from the eastern, Ahenakew deposystem, as an informal, lithologic tool. The upper two members were stated as present throughout the Athabasca Basin (Ramaekers, 1979, 1990; Ramaekers et al., 2001). The Manitou Falls Formation within the Maybelle River study area has an average thickness of 95 metres at the Maybelle River prospect, thickening slightly to the north (Fig. 2-4). It is characterized by a thin, moderately-sorted, medium to coarse-grained, cross-bedded sandstone with granule to pebble clasts overlain by a thick, well sorted, ripple-cross-laminated to cross-bedded, medium-grained sandstone with less than 1% clay intraclasts throughout. In contrast with the eastern side of the basin, the MF in the western portion of the basin unconformably overlies the Fair Point Formation. The contact with the overlying Lazenby Lake Formation is sharp and disconformable, marked by the loss of intraclasts and gain of pebbles (Kupsch and Catuneanu, 2002).

Lithostratigraphic correlation is unclear with Manitou Falls sections on the eastern side of the Athabasca Basin. Nevertheless, two members of the Manitou Falls Formation are consistently recognizable in the Maybelle River study area. They have similar lithological characteristics corresponding to MFc (Ramaekers et al., 2001) and MFd (Ramaekers, 1990). MFc is characterized as a moderately sorted, medium- to coarse-grained, granule rich, ripple-cross-laminated sandstone with rare intraclasts and conglomerate beds (Ramaekers et al., 2001). The overlying MFd is characterized as a fine- to coarse-grained, relatively well sorted, cross-bedded sandstone containing greater

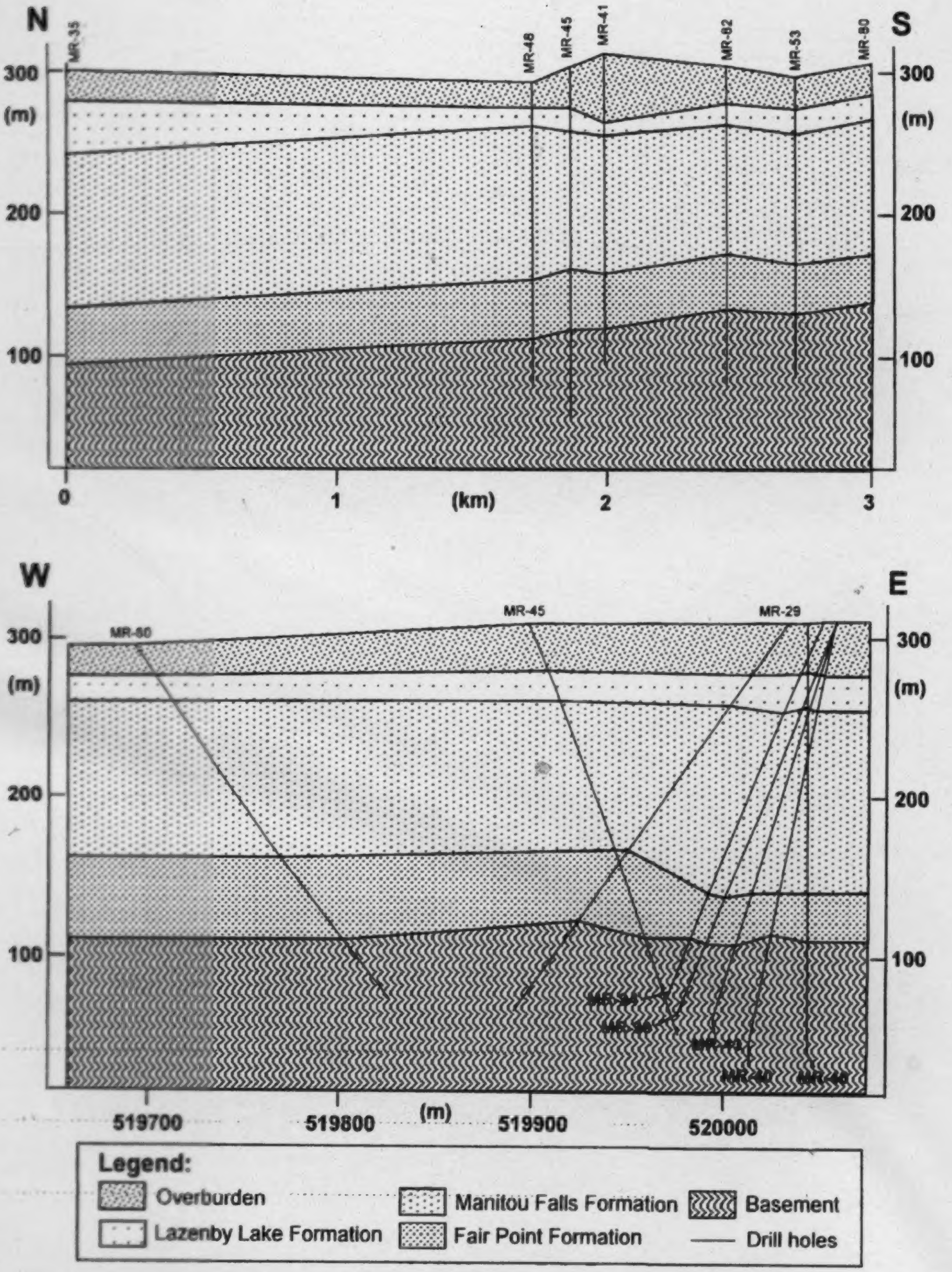
N
S
MR-35
MR-48
MR-45
MR-41
MR-82
MR-53
MR-80
300
(m)
200
100
0
1
(km)
2
3
W
E
MR-60
MR-45
MR-29
MR-34
MR-39
MR-43
MR-40
MR-46
519700
519800
(m)
519900
520000
Legend:
Overburden
Lazenby Lake Formation
Manitou Falls Formation
Fair Point Formation
Basement
Drill holes

Fig. 2-4. Two vertical cross sections from North to South and West to East showing the regional stratigraphy of the Maybelle River area. Drill hole locations are shown on Figure 2-2. MR-29, -43, -60 are offsection to the N and MR-45 to the S which accounts for the slightly offset Formation boundaries between holes.

than 1 % clay intraclasts (Ramaekers, 1990). Strictly applying these definitions to the Maybelle River area eliminates MFd, because clay intraclasts there never exceed 1%.

The two members in the Maybelle River area also show affinity with members from the newly revised Lower Manitou Falls (Lower MF) and Upper Manitou Falls (Upper MF) in the western part of the basin at Shea Creek (Collier 2002). The Lower MF2, defined as clean sandstone with low-angle cross-beds, and the Upper MF1, defined as small-scale ripple-cross-laminated, medium- to coarse-grained, granule-rich sandstone; loosely corresponds to Ramaekers (1990) MFc. The Upper MF2, defined by Collier (2002) as ripple-cross-laminated and flat-bedded sandstone with abundant clay intraclasts (more than 1%), corresponds to Ramaekers (1990) MFd. Again, Collier's MF2 does not apply to the Maybelle River area because of the intraclast factor.

In a third twist, Ramaekers (2003a, 2003b) assigned both MF units in the Maybelle area to MFc as defined by the far distant Ahenakew deposystem (Ramaekers, 1990). As might be expected, data collected in this study show that the Manitou Falls Formation at Maybelle River area is more similar to the Manitou Falls Formation defined in the nearby Shea Creek area (Collier, 2002). The lowest member in the study area corresponds to the Upper MF1 of Collier (2002) (corresponding to MFc of Ramaekers, 1990), overlain by a thick sequence equivalent to the Upper MF2 (Collier, 2002) which is equivalent to MFd of Ramaekers (1990) (Table 2-3). In other words, the original definitions of MFc and MFd as lithologic descriptors still hold in the western Athabasca Basin, provided that one relaxes the MFd definition to require only "relatively abundant" clay intraclasts. Also, MFc is finer grained in the western Athabasca Basin than in the east.

Lazenby Lake Formation Stratigraphy

The Lazenby Lake Formation (LzL) is contained in the Mirror and Jackfish Sub-basins and overlies the Patterson High., Ramaekers et al. (2001) only recently recognized its existence in Alberta. The LzL is defined as a moderately to poorly sorted, massive to cross-bedded, granule to pebble-bearing quartz arenite with common overturned bedding (Ramaekers, 1980; Yeo et al., 2001). No stratigraphic revisions have been needed for the LzL throughout the basin. The basal part of the LzL is the youngest unit of the Athabasca Group that is preserved in the Maybelle River study area (Table 2-3). It is overlain unconformably by Quaternary deposits of till, sand and gravel. The contact with the underlying Manitou Falls is disconformable. An average thickness of 20 m is preserved in the immediate Maybelle River area and it thickens to the north (Fig. 2-4).

Sequences

An initial genetic breakdown of the Athabasca Group was provided by Ramaekers et al. (2001), dividing the strata into three fining upward sequences bounded by mappable, basin-wide sequence boundaries. Poor geochronological control on the length of time precludes the assignment of the order of sequence boundaries. Correlation of relative time associations in the Athabasca Group is prevented by the lack of documented chronostratigraphic markers within it.

Three sequences are recognized in the Maybelle River study area in the Athabasca Basin. These are the Fair Point (sequence 1), Manitou Falls (sequence 2), and Lazenby Lake-Wolverine Point (sequence 3) (Ramaekers and Catuneanu, 2003), the latter being incompletely preserved in this area (Table 2-3). Internally, these sequences contain sandstones that are generally uniform with more fine-grained facies associations toward their tops and are marked by dramatic changes in sedimentary style and mean grain size with respect to the underlying strata (Ramaekers, 1990; Yeo et al., 2001a; Collier, 2002). The sequence boundaries correspond exactly to the formational boundaries; hence the same names are used for both.

The Fair Point-Manitou Falls Sequence Boundary

For most of the area, this contact is sharp (Fig. 2-5). It is marked by an abrupt decrease in MTG and mean grain size and a dramatic change of interstitial clay from abundant to trace amounts. A change in sedimentary style from massive beds (Sm) to ripple-cross-laminated (Sr) and planar-cross-bedded (Sx) is distinct. In some drill holes, the contact is more gradational, being composed of reworked Fair Point material. In other holes, red mudstone paleosol, including local oncoid beds (Ickert, 2003) mark the contact between the FP and the MF (MR-41 and -46).

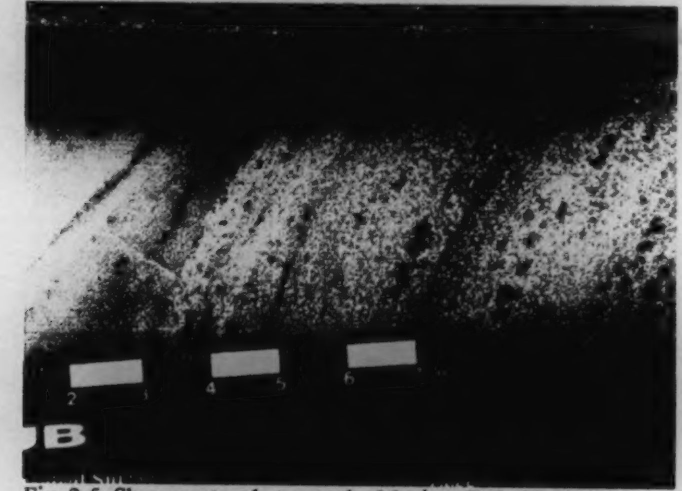

Fig. 2-5. Sharp contact between the Manitou Falls (on the left) and the Fair Point (on the right) formations in MR-80 at 156.2 m depth.

The Manitou Falls-Lazenby Lake Sequence Boundary

This contact is gradational over a thickness of 1-3 m. The abundance of clay intraclasts decreases upward from a maximum of nearly 1% in MFd to rare in the LzL. The MTG increases from 1 mm in the MFd to medium pebble size in the LzL. G1 layers become common and are used to mark the base of the LzL in some drill holes. Overturned and convoluted bedding become much more common, constituting up to 20% of the LzL.

Lithofacies Associations

Four lithofacies associations are distinguishable at Maybelle River area on the basis of primary sedimentary structures and lithology (Fig. 2-6). The Fair Point Formation consists of one lithofacies association of massive- to cross-bedded sandstones that correspond to FPu. The Manitou Falls Formation is made up of two distinct lithofacies associations: (1) cross-bedded, medium to coarse grained sandstones corresponding to MFc, and (2) intraclast-bearing, ripple-cross-laminated, medium-grained sandstone corresponding to MFd. The Lazenby Lake Formation consists of one lithofacies association of pebble- and granule-bearing, ripple-cross-laminated to massive sandstone.

Lithofacies association 1 – massive sandstones

Lithofacies association 1 (Fig. 2-7) has been recognized in all 16 drill holes and directly overlies the unconformity in the Maybelle River study area. Association 1 closely corresponds to Fair Point b2 member (FPb2) Fair Point c member (FPc) of Ramaekers (2003b) and the upper FP of Post (pers. commun., 2003). This association is characterized by medium- to very coarse-grained massive sandstone (Sm) with minor thin pebble conglomerate beds (facies Gmm, Gmg), interbedded pebbly sandstones (Pm), and floating pebbles. Siltstone beds and clay intraclasts are minor components. The sandstones appear to be massive in most sections. Crudely defined very low angle cross-beds are more common toward the top. The association fines upward overall. Individual fining upward portions grading from very coarse- to medium-grained sandstones over thicknesses of 0.5 to 1 m are most common toward the top. Conglomeratic beds are typically less than 10 cm thick, are concentrated at the base of this association, and become rare stratigraphically upward, constituting less than 10 % of the overall association. The MTG ranges from granule to cobble grade, with a maximum of 70 mm. Clasts are subangular to subrounded, composed dominantly of quartz with minor rock fragments and platy limonitic gneiss pebbles that are interpreted to be reworked regolith (Ramaekers et al., 2001). Sorting is moderate to poor.

Although diagenetic and hydrothermal features have no direct bearing on primary sedimentary lithofacies, they are presented here for completeness and as an aspect that must be "seen through" in order to determine primary sedimentary features. Silicification is moderate, and porosity is moderate to high. Abundant interstitial clay attests to a high primary labile fragment composition. The colour is typically pink with mottled red to purple-hematite staining. Bedding is mostly masked by this diagenetic colouration of the sandstone.

Lithofacies association 2 – cross-bedded, medium- to coarse-grained sandstone

Lithofacies association 2 (Fig. 2-8) is present in all 16 drill holes and directly overlies the Fair Point – Manitou Falls formation unconformity. Lithofacies association 2 is basically the same as, albeit finer grained than MFc of Ramaekers (1990). This lithofacies is typically less than 10 m thick, fines upward, and may represent the coarser base of the gradationally overlying association. It is characterized as a moderately sorted,

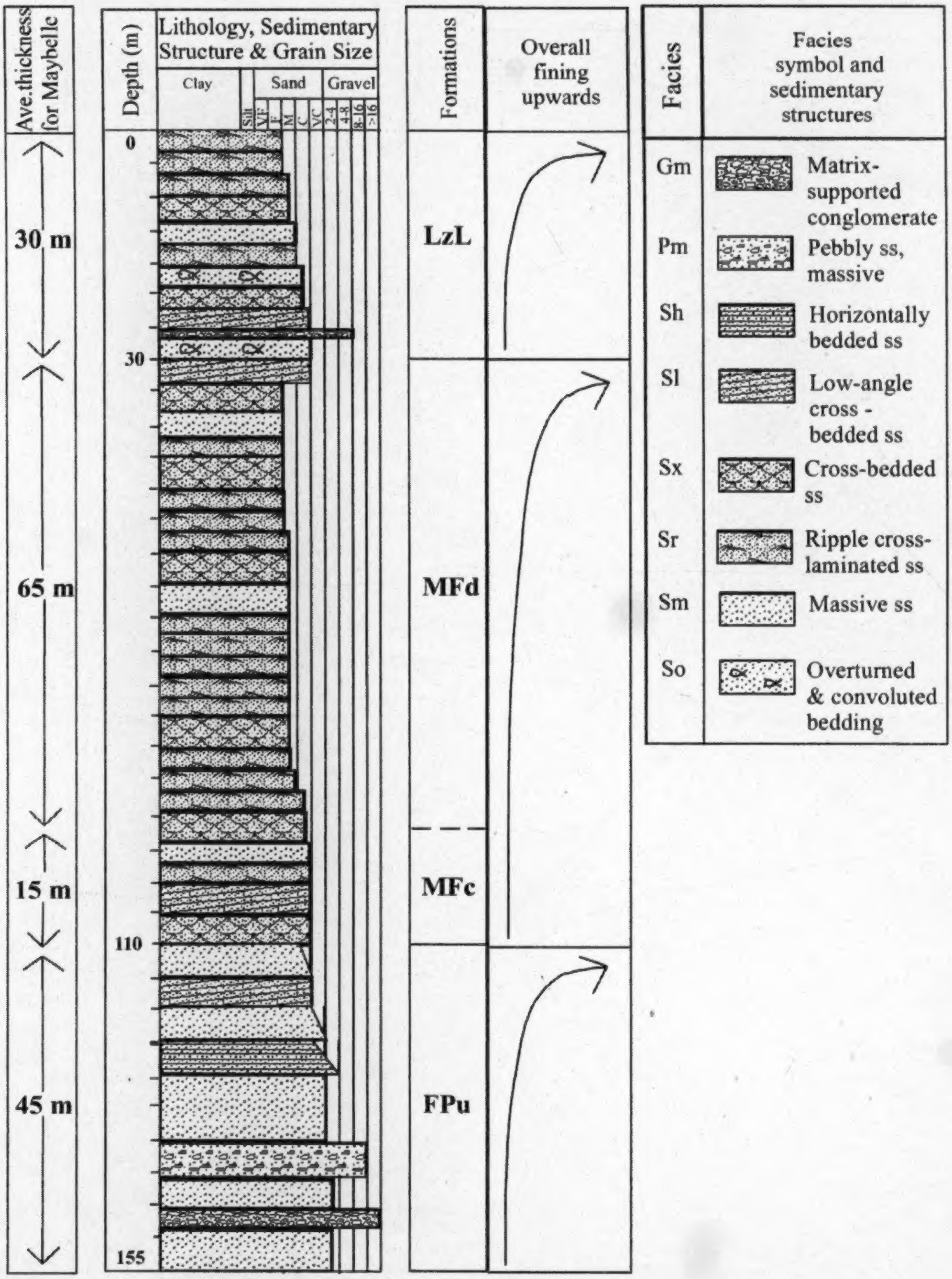
Ave.thickness for Maybelle
30 m
65 m
15 m
45 m
Depth (m)
0
30
110
155
Lithology, Sedimentary Structure & Grain Size
Clay
Silt
Sand
VF
F
M
C
VC
Gravel
2-4
4-8
8-16
>16
Formations
LzL
MFd
MFc
FPu
Overall fining upwards
Facies
Facies symbol and sedimentary structures
Gm
Matrix-supported conglomerate
Pm
Pebbly ss, massive
Sh
Horizontally bedded ss
Sl
Low-angle cross - bedded ss
Sx
Cross-bedded ss
Sr
Ripple cross-laminated ss
Sm
Massive ss
So
Overturned & convoluted bedding

Fig. 2-6. Type stratigraphic section for the Maybelle River area. Average thicknesses for formations within the study area as well as typical sedimentary beds and structures are shown.

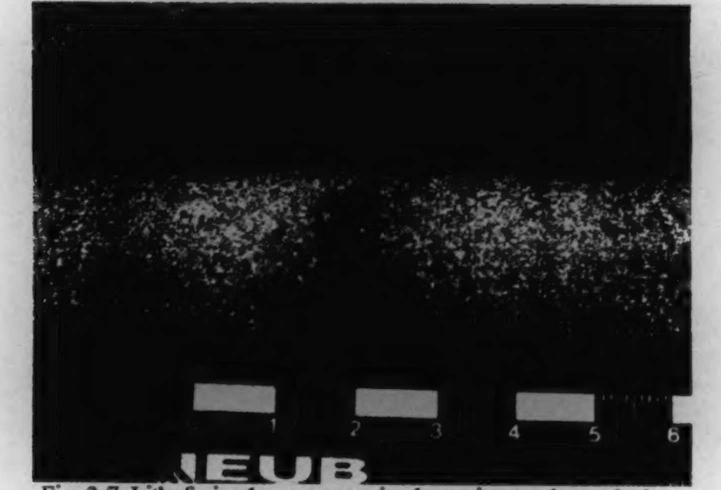

Fig. 2-7. Lithofacies 1 - coarse grained massive sandstone beds with disseminated pebbles of the upper Fair Point Formation in MR-45 at 170 m depth.

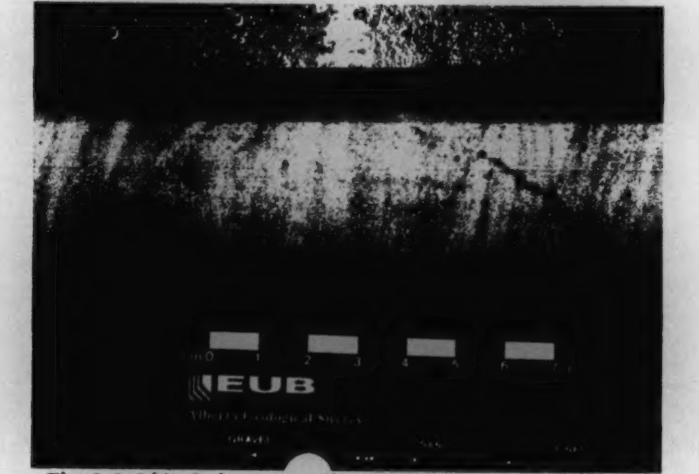

Fig. 2-8. Lithofacies 2 – medium to coarse grained pebbly sandstone with cross bedding of the Manitou Falls c in MR-47 at 150 m depth.

cross-bedded to massive, granule to pebble bearing, medium- to coarse-grained sandstone. Low-angle cross bedding (Sl) is the dominant sedimentary structure with minor ripple-lamination (Sr) and massive (Sm) bedding. Minor, thin, very fine-grained sandstone to siltstone lenses are distributed throughout this association. The MTG ranges from granule to medium pebble, with granules dominating. The clasts are dominantly quartz with minor rock fragments. Fair Point clasts, up to 2 m in diameter, are found in some drill cores just above the FP - MF unconformity. Some heavy mineral laminae are evident along bedding planes and foresets. Intraclast are cream coloured, sliver-like and are rare.

Diagenetic and hydrothermal features are as follows. Silicification is weak and porosity is moderate. Matrix clay constitutes approximately 6% of the unit, which is less than in Lithofacies association 1 but greater than in Lithofacies association 3. The rock is cream coloured with light red to pink hematite liesegang banding throughout.

Lithofacies association 3 – intraclast-bearing, ripple cross-laminated, medium grained sandstone

Lithofacies association 3 (Fig. 2-9) is present throughout the Maybelle River study area and gradationally overlies the coarser grained lithofacies 2. Lithofacies association 3 almost corresponds to MFd of Ramaekers (2003b) and the upper MF of Collier (2002). This association is typically 65 m thick and constitutes the main thickness of the Athabasca Group within the study area. It is characterized as well sorted, fine- to medium-grained sandstone, being dominantly ripple cross laminated (Sr) with minor tabular cross bedding (Sx). Low-angle cross beds (Sl) are present at the upper boundary of association 3. Minor mudstone and siltstone lenses are found throughout and are generally less than 5 cm thick. Fining upward beds predominates. A MTG of 1 mm predominates throughout, and rarely exceeds 2 mm. This association includes common but less than 1% small, cream coloured, sliver-like, clay intraclasts which decrease downward where the mean and maximum grain size is coarser.

Diagenetic/hydrothermal aspects are similar to those of lithofacies association 2. Matrix clay is low at 1-2 %. The unit is poorly silicified, with moderate porosity. The rock is cream coloured with light red to pink hematite liesegang banding throughout, with occasional dark red reduction spots. Fracture fillings include pyrite and drusy quartz.

Lithofacies association 4 - pebble bearing and granule bearing, ripple cross laminated to massive sandstone

Lithofacies association 4 (Fig. 2-10) is distributed throughout the Maybelle River study area but is incompletely preserved, being unconformably overlain by Quaternary deposits. Lithofacies association 4 constitutes the lower part of the Lazenby Lake Formation (Ramaekers, 1990). Typically no more than 30 m of this association is preserved, resting unconformably over lithofacies association 3. This association is characterized by moderate to well sorted, cross bedded, granule to pebble-bearing, fine- to medium- grained sandstone which exhibits basal coarsening. Ripple cross-laminae (Sr) and tabular cross-bedding (Sx) are the dominant sedimentary structures. Massive bedding (Sm) and low-angle cross (Sl) beds are subordinate but more abundant toward the base. Overturned and convolute bedding are common (about 20%) throughout. Pebbles are isolated within beds and distributed along bedding planes, locally forming pebble beds one layer thick (G1). The G1 beds are most common toward the base of this association and are not correlatable between drill cores. The pebbles are subrounded and quartz dominated. The amount and size of the pebbles decrease upward. The MTG is commonly over 2 mm with a maximum of 30 mm toward the base. Mudstones and clay intraclasts are rare.

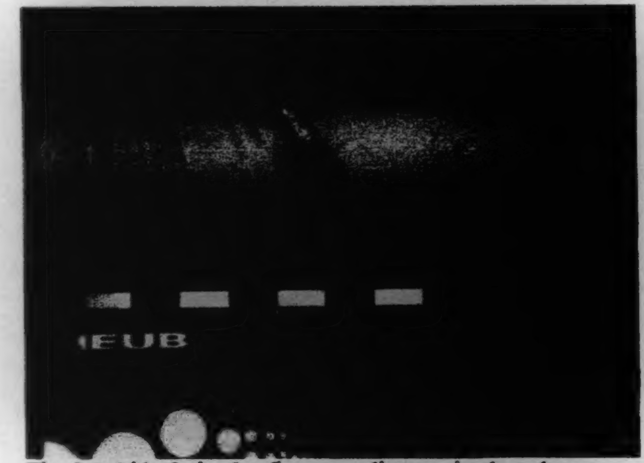

Fig. 2-9. Lithofacies 3 – fine to medium grained sandstone with ripple cross laminations on the left, intraclast in the centre and massive bedding on the right in Manitou Falls d in MR53 at 100 m depth.

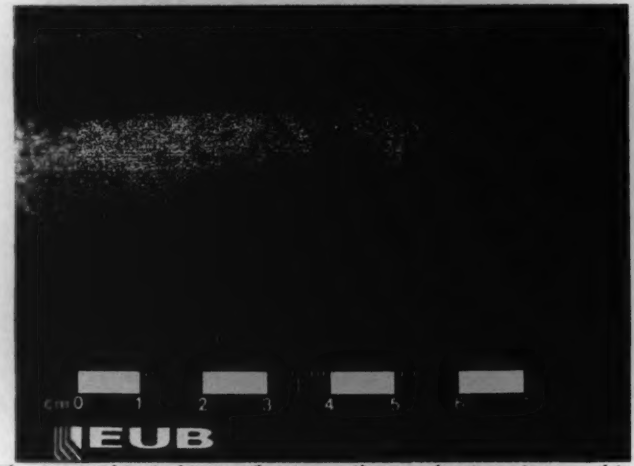

Fig. 2-10. Lithofacies 4 – fine to medium grained sandstone with overturned and convoluted bedding of the Lazenby Lake Formation in MR-45 at 43 m depth.

Some diagenetic/hydrothermal features differ from those of the other associations. Matrix clay is low at 1-2 %. Minor calcite cement was observed. Lithification by quartz cement and pressure solution is moderately strong, with corresponding moderate to low porosity. The rock is cream coloured with light red to pink hematite liesegang banding throughout. Fracture fillings include nodular pyrite and drusy quartz. Yellow-green phospatic staining is local.

Interpretation and Discussion

Lithofacies Associations 1

Lithofacies association 1 massive sandstones are interpreted as hyperconcentrated flow deposits, based on the lack of definable beds, indistinct internal structure, the lack of fine-grained interbeds, and the consistent poorly sorted sand-pebble texture (Lowe, 1982; Costa, 1988; Blair and McPherson, 1994). Normal grading and horizontal lamination to low angle cross beds as seen more toward the top of the FP were deposited by waning fluvial traction currents under upper to middle flow regimes. Subordinate fluvial morphological components interpreted from these sedimentary structures include longitudinal barforms with gentle lee slopes and shallow, wide channels, both with low preservation potential. The general lack of definable bedding implies significant post-depositional reworking in a relatively high-energy fluvial environment that lacked stabilizing bank agents. On the other hand, much of the difficulty in recognizing bedding may be ascribed to the intense diagenetic clay and hematite alteration. Rare pebble conglomerate to pebbly sandstone lenses are herein interpreted as lag deposits, within ephemeral channels, possibly corresponding to major discharge events. The depositional plane must have had a relatively high gradient.

Lithofacies Associations 2 and 3

These lithofacies associations are dominated by ripple lamination. This implies they were formed in very shallow sandy braided streams with high width-to-depth ratios, representing perennial or semi-perennial fluvial systems. This records a major change in fluvial style from the Lithofacies association 1.

Lithofacies association 2, cross-bedded with subordinate massive-bedded sandstones, is interpreted as deposited by traction currents on a low gradient alluvial-braid plain. This regime implies braided channel morphology, with the main fluvial architecture being dominated by longitudinal bars in wide, shallow channels. However, the dominance of cross-bedding suggests that bars developed increased internal complexity, during slight decreases in flow velocity. The granule to medium pebble MTG records relatively high fluvial velocity that would have prevented the formation of ripples but favored the development of dunes (Ashley, 1991; Miall, 1996). Formation of massive beds is possibly related to upper flow regime conditions corresponding to sheet flow conditions.

Lithofacies association 3, dominated by ripple to cross bedding, represents perennial, low velocity fluvial discharge on a low gradient, constructive braid plain. The overall continuity of sedimentary structures throughout this lithofacies, representing low-angle ripples, small dunes and longitudinal bars, records more or less constant stream flows of about 1m/s (Miall, 1996). Channels were most likely gently sloping and shallow with high width to depth ratios. Sinuosity, although probably low, is suspected to have been relatively higher than that of associations 1 and 2. Paleocurrent data from oriented drill core would be needed to verify this assumption. Even though lacking in stabilizing bank agents, sandbars in this association would have exhibited a greater degree of internal complexity than the underlying coarse-grained, cross-bedded association. It is, however, impossible to document the overall geometry of bar and channel macroelements without extremely close-spaced drillholes or open pit exposures such as documented by Long (2002). These fluvial strata lack definable and traceable hierarchical lithosome surfaces. Depth of the perennial flow, based on the thickness of the bed sets, was most likely less than 1m at peak flow condition and much less during low discharge periods. The presence of low angle cross beds at the top of the sequence may be a result of increased flashy discharge, signifying a return to upper flow regime conditions.

White, sliver-like silty clay intraclasts observed throughout the Manitou Falls Formation but characteristically more abundant in lithofacies association 3, were locally derived. The source of these intraclasts was most likely from consolidated fines that were deposited in quiet water eddies off the channels or in standing pools during low-stage channel abandonnement that resulted in clay and mud drapes (Miall, 1996). Such fine-grained sediment traps are exemplified in drill core by thin siltstone beds, typically less than 2 cm thick, however beds of the same composition as the intraclasts were not found. The siltstone beds are interpreted as discontinuous lenses, because they do not correlate between closely spaced drill holes. Intraclast rip-up and deposition, and the lack of any preserved clay beds, indicate that channel migration was frequent and, therefore, was neither stabilized nor armored by coarse clastics. This is compatible with the interpretation of high width to depth ratios of the channels.

Lithofacies Associations 4

The predominance of ripple cross-laminated sandstones supports deposition in a traction-current-dominated, low velocity, braided fluvial system with a fluvial architectural, similar to the ripple to cross-bedded association of association 2. The lack of apparent change in discharge regime from associations 2-3 to association 4 intuitively supports a lack of change in bar forms and channel morphology. The massive beds in association 4 may represent high velocity flow conditions as outlined previously; however, they may also indicate abrupt drops in flow velocity, in which case the rapid rise in shear strength resulted in massive deposition of sands (e.g. Martin and Turner, 1998). The convolute bedding may have been produced by frictional drag of high-velocity flows over water-saturated sands during renewed flooding (Owen, 1995; Collier, 2002). The minor but consistently present outsized quartz granules to pebbles are interpreted as basal lag deposits, particularly those that are concentrated along bedding planes as G1 layers. It is also possible that the granules and pebbles where deposited on the up-stream faces of bars after being rolled by moderate stream velocities. Ramaekers (pers. commun., 2002) has observed that this part of the Athabasca Basin was so far from sources of coarse grained material that such outsized pebbles truly represent high stream velocities which otherwise had only sand grade material to rework. This latter explanation could account for the sparse pebbles that are suspended in fine sandstone in the middle of beds (so-called "floating pebbles").

The Fair Point-Manitou Falls Formation and Sequence Boundary

As stated previously, the Fair Point-Manitou Falls contact (FP-MF) is unconformable. The preserved thickness of the FP in the eastern drill holes MR-34, -39, -

40, -43 and -46 along the W-E cross section is thinner than in the drill holes situated to the west (Fig. 2-4). Whereas the FP-MF contact appears to be sharp and easily recognizable in most drill core, this contact has a gradational appearance in MR-39, -40 and –43. Here, FP strata appear to have been reworked and the texturally dominate the basal MF strata. The most distinctive FP-MF contact marker is in MR-46. Here a 50 cm thick section of red highly hematitic mudstone contains centimetre-scale spheroids that are interpreted to be oncoids in a paleosoil, based on their resemblance to oncolites in a hematitic paleosol documented at the base of MF in Saskatchewan (Yeo et al., 2002b) and between the FP and MF in Alberta (Ickert, 2003). The thinner area of FP to the east could be explained by greater erosion at this locality prior to deposition of MF. This is supported by the presence of the local paleosol at the base of MR-46, and suggests that the area of drill-holes MR-34, -39, -40, -43 and -46 was a paleotopographic high. Paleosols form in interfluve areas which require stability of the land surface and low sedimentation influx for their development, and thus indicate lengthy pauses in sedimentation (Kraus, 1999). During the initiation of MF deposition in the location of MR-39, -40 and -43, erosion would have removed any paleosol if it were present, leaving only reworked strata. At MR-46, the base of the paleosol was preserved and covered with reworked FP sediment. If the western area was relatively depressed, the paleosol would have been less developed in that area and would therefore have been easier to erode during resumption of MF sedimentation. Meanwhile, uplift and erosion caused the thinning of the FP to the east. With the erosion of the eastern holes, matrix-supported FP clasts situated above the FP-MF contact in drill hole MR-34 could represent slumped bank materials from failed channels walls from the west.

Basin Development

The intracratonic Athabasca Basin is underlain by Rae and Hearne provinces formerly known as the Churchill structural province (Hoffman, 1990). The Rae and Hearne provinces occur between the Thelon Orogen (2.0 Ga) to the west separating it from the Archean Slave Province, and the Trans Hudson Orogen (THO, 1.9-1.8 Ga) to the southeast separating it from the Archean Superior Province. The tectonic history of the Churchill Province resembles that of a similar-styled continental hinterland of the Tibetan Plateau (Dewey and Burke, 1973).

The Athabasca Basin was formed through continent-scale sagging possibly resulting from cooling of the upper mantle and thermal subsidence (Peterson et al., 2002). Basin initiation is possibly related to the 1.75 Ga, southwest-northeast trending band of plutonism throughout the Churchill Province, subparallel to the bounding THO (Peterson et al., 2002). Emplacement of the 1.75 Ga Nueltin anorogenic granitoids and co-magmatic Pitz rhyolites (Peterson and van Breemen, 1999) resulted from the delamination of the lithospheric mantle causing local crustal extension along with passive, relatively unfocussed mantle upwelling (Peterson et al., 2002). This resulted in the viscoelastic relaxation of lower crust and localized and regional lithospheric stretching (Klein, 1995). Initial stretching was accommodated in the faults, than quickly replaced by thermal subsidence. Apatite cement from the Fair Point Formation provides a poorly constrained U-Pb date of 1750-1700 Ga for the age of basin formation (Cumming et al., 1987). Detrital zircons from the Wolverine Point b unit give a maximum age of c. 1.66 Ga (Rainbird et al., 2002).

The sequence boundaries found in the Athabasca Basin are a result of disrupted sedimentation by major stages of uplift and basin reorganization. Tectonism is most likely the primary influence of sedimentation as changes in tilt direction, depocentre locations, and significant changes in grain sizes are recorded across the sequence boundaries (FP-MF and MF-LzL). The high compositional maturity at the time of deposition of the Manitou Falls and Lazenby Lake sequences suggests that uplifts were slower to develop than during the deposition of the Fair Point sequence. Climate is an additional allogenic control on sedimentation which modifies the efficiency of weathering, erosion and sediment transport processes.

Basin initiation of the Athabasca Group corresponds to initial, short-term, rapid subsidence related to Fair Point sedimentation. The abundance of clay and feldspar-pseudomorphs suggests that sediments are locally derived, and/or did not undergo an extended period of weathering prior to deposition. The abundance of detrital zircons with a local source (e.g. from the Taltson Magmatic Zone; Rainbird et al., 2002) in the FP suggests that the cause of the immaturity of the sediment is due to a local source and rapid sedimentation. This contrasts with the overlying Manitou Falls Formation, which is considerably less clay rich and more arenitic. Major basin reorganization followed corresponding to the development of the FP-MF unconformity where it is assumed that the basin underwent regional westward-directed tilting due to paleocurrent directions (Ramaekers, 1990). The MF most likely is sourced from the easterly Trans-Hudson Orogen (Rainbird et al., 2002). A change in tectonic regime is indicated by the MF-LzL unconformity bounded surface, the change in isopach patterns and source area which could represent dynamic loading of the southward-located, northward-convergent Central Plains Orogeny (1780-1680 Ma, Dahl et al., 1999).

Conclusions

A detailed study of 16 drill cores within the Maybelle River area was the basis for reconsidering the lithostratigraphy, sequence stratigraphy and lithofacies associations of the Athabasca Group in this area.

Three sequences are distinguished in the Maybelle River study area: the Fair Point, Manitou Falls and the Lazenby Lake-Wolverine Point sequences. The Lazenby Lake-Wolverine Point sequence is incomplete. Major sequence boundaries (unconformities) are indicated by changes in maximum transported grain size (MTG) and primary sedimentary structures. The Fair Point-Manitou Falls contact is a well defined unconformity, based on sharp contacts, matrix-supported undeformed Fair Point clasts situated above the contact in the Manitou Falls sandstone, and the local preservation of a distinctive iron-rich paleosol, including oncolites that records a significant temporal hiatus.

A change in hydraulic fluvial characteristics from the Fair Point Formation to the Manitou Falls Formation further supports the above-inferred depositional hiatus. The Fair Point Formation is clearly distinguished from the Manitou Falls Formation on the basis of primary sedimentary features, such as massive bedding (Sm), coarser mean grains size and maximum transported grain size. Its high interstitial clay abundance albeit diagenetic, is interpreted to indicate a high proportion of primary labile clasts, another significant and consistent distinction. Because the upper and lower sequence boundaries correspond everywhere to formational boundaries, this is herein referred to as the Fair Point sequence.

The poorly defined bedding and lack of fine-grained beds, and the consistent sand texture in the Fair Point Formation supports its deposition as hyperconcentrated flows in an alluvial plain setting with an intermediate regional slope intermediate between that of braided river and alluvial fan end members as defined by Milana and Ruzycki (1999).

The Manitou Falls Formation in the study area, based on consistent medium grain size and the predominance of ripple and dune structures, is interpreted as deposited by a perennial, low gradient, constructive braided fluvial system. As for the FP, the formational boundaries correspond everywhere to sequence boundaries, therefore MF is herein referred to as the Manitou Falls sequence.

The locally distributed and relatively thin, coarser, basal member (MFc) reflects possible infilling of eroded paleovalleys that developed during the time represented by the Fair Point-Manitou Falls unconformity. The greater abundance of low-angle cross beds (Sl) in the upper Manitou Falls member (MFd) suggests increased flashy discharge toward the Lazenby Lake Formation contact. The term MFd is here applied to this member because it has a consistently higher abundance of clay intraclasts than the underlying MFc, even though these do not reach the 1% threshold used to distinguish MFd in the eastern part of Athabasca Basin.

The gradational Manitou Falls- Lazenby Lake contact is marked by the appearance of pebbles and pebble beds, a loss of intraclasts, and the appearance of overturned and convoluted bedding. This is also interpreted to be a sequence boundary. Only the lowermost lithofacies of the Lazenby Lake Formation is preserved in the Maybelle River study area. Again, because this formational boundary corresponds to a sequence boundary, The Lazenby Lake Formation is here assigned to the base of the Lazenby Lake-Wolverine Point sequence. The fluvial character of the basal Lazenby Lake Formation is similar to that of the upper Manitou Falls Formation, interpreted as mainly perennial, low velocity discharge, based on abundant ripple cross-laminae and consistent fine to medium grain size. The massive beds may represent sudden deposition caused by temporary pooling on the braid plain, resulting from channel avulsion. The 20% convolute bedding is related to soft sediment deformation possibly caused by dewatering of such rapidly deposited beds and by frictional drag of subsequent floods over soft sand.

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CHAPTER 3

Alteration features and geochemical signatures of the Maybelle River Uranium zone, Athabasca Basin, Alberta

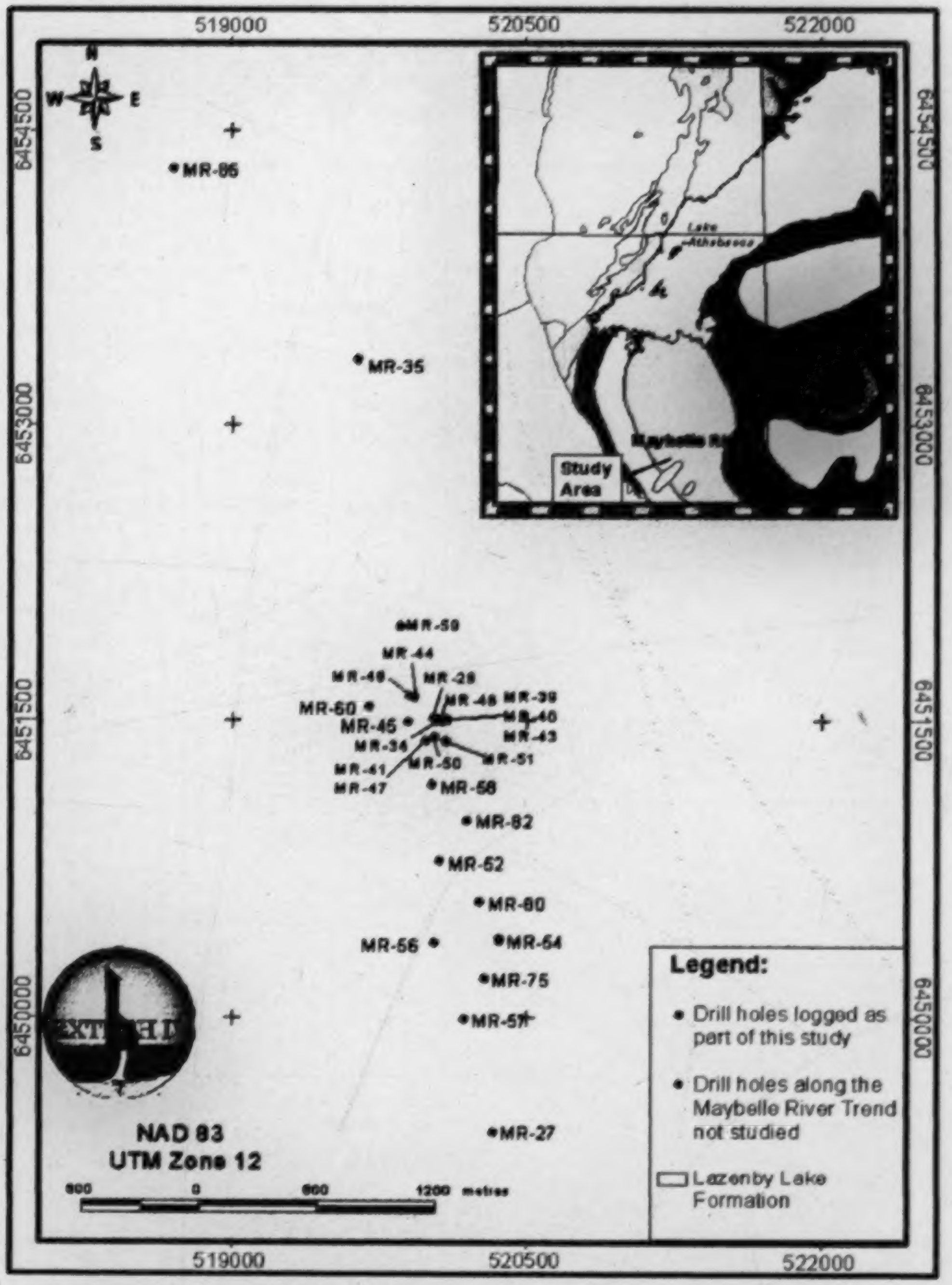
Introduction

The Proterozoic Athabasca Basin, in northern Saskatchewan, is host to some of the world's largest and richest known uranium deposits (Fig. 3-1). There have been 22 uranium deposits discovered within the Athabasca basin which contain more than 500 million kilograms of uranium at grades ranging from 0.3 to 15 percent U_3O_8 on average (Wheatley et al., 1996). Initial discoveries at Rabbit Lake and Cluff Lake and subsequent discoveries at Key Lake, Midwest Lake and Cigar Lake (Fig. 3-1) all show similarities to unconformity-type uranium deposits. Unconformity-type uranium deposits are also located in Northern Territory of Australia. Although the Australian deposits are similar in age, geochemistry and host-rock alteration and some aspects of their sedimentary and structural settings (Kirchner et al., 1980; Maas, 1989), they nonetheless differ in that all the important deposits are in basement rocks beneath the Kombolgie Sandstone. In contrast, although the high-grade uranium deposits within the Athabasca Basin are associated with the sub-Athabasca unconformity, they occur and are hosted in both the Athabasca Group sandstones above the unconformity, and below the unconformity in Aphebian metamorphic and igneous rocks of the Hearne Province. As a result of this sandstone-basement unconformity spatial relationship, they have been named "*unconformity-type uranium deposits*". In general, most of the known important deposits tend to occur within a few tens to a few hundred metres of the unconformity and within 500 m of the current ground surface, thus making them accessible and attractive exploration targets, and Saskatchewan a major producer (30%) of the world's uranium (Fayek and Kyser, 1997).

It has been suggested the unconformity-type uranium deposits formed as a result of transport of metals by diagenetic high salinity, basinal brines and the subsequent deposition of uranium and some other metals at temperatures of 200°C at a stable redox interface by mixing of the chemically and isotopically distinct diagenetic basin fluids with basement-derived fluids in the fault zones (Hoeve and Sibbald, 1978; Pagel et al., 1980; Wallis and Kyser, 1983; Hoeve and Quirt, 1984; Wilson and Kyser, 1987; Kotzer and Kyser, 1990). Distal to the fault zones, the basinal sandstones have undergone a distinct diagenesis due to lateral movements of the hot diagenetic basin fluids.

The Athabasca Basin has had a long and protracted fluid history noted by the stable isotopic, fluid inclusions, and radiogenic studies of clay and other minerals in and around unconformity-type uranium deposits (Powers and Stauffer, 1988; Wilson and Kyser, 1987; Kotzer and Kyser, 1990, 1993). The long lasting nature of hydrothermal activity in the Athabasca Basin has also affected the mineralogical, isotopic and chemical composition of uranium mineralization (Kotzer and Kyser, 1990).

This paper summarizes the results of work on drill core from the Maybelle River area, Alberta, carried out at the Mineral Core Research Facility (MCRF) in Edmonton in 2002. The Maybelle River area is located approximately 200 km northeast of Fort McMurray, Alberta (Fig. 3-2). This thesis is part of a larger project entitled EXTECH IV,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MR-50
MR-51
MR-47
MR-58
MR-82
MR-52
MR-80
MR-56
MR-54
MR-75
MR-57
MR-27
Lake Athabasca
Study Area
NAD 83
UTM Zone 12
600
0
600
1200 metres
Legend:
Drill holes logged as part of this study
Drill holes along the Maybelle River Trend not studied
Lazenby Lake Formation

Fig. 3-2. A map of the Maybelle River area showing the location of drill holes logged as part of this study. The Lazenby Lake Formation is represented by the orange background and the lakes are represented by the white areas.

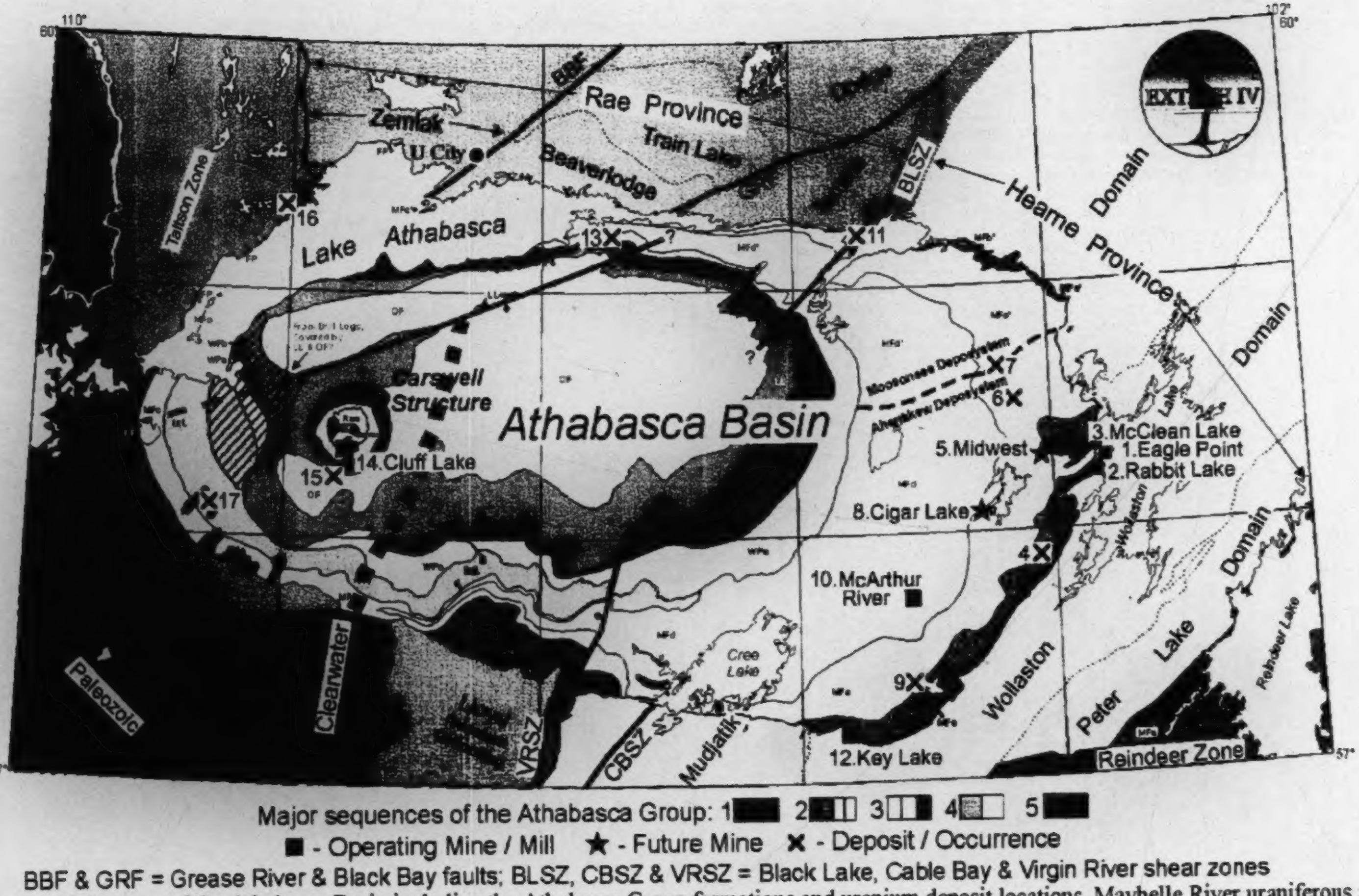

110°
60°
102°
60°
57°
57°
EXTECH IV
Rae Province
Train Lake
Zemlak
U City
Beaverlodge
BBF
BLSZ
Hearne Province
Domain
Domain
Domain
Tatson Zone
16
Lake Athabasca
13
11
Carswell Structure
Athabasca Basin
Mooonose Depositystem
Athabasca Depositystem
7
6
3.McClean Lake
1.Eagle Point
2.Rabbit Lake
5.Midwest
8.Cigar Lake
4
14.Cluff Lake
15
17
10.McArthur River
Cree Lake
9
Wollaston
Wollaston
Peter
Lake
Reindeer Lake
Reindeer Zone
12.Key Lake
Mudjatik
CBSZ
VRSZ
Clearwater
Paleozoic
Major sequences of the Athabasca Group: 1 2 3 4 5
■ - Operating Mine / Mill ★ - Future Mine ✖ - Deposit / Occurrence
BBF & GRF = Grease River & Black Bay faults; BLSZ, CBSZ & VRSZ = Black Lake, Cable Bay & Virgin River shear zones

Fig. 3-1. Location map of the Athabasca Basin including the Athabasca Group formations and uranium deposit locations. Maybelle River uraniferous zone is symbolized by the number 17 occurrence.

Athabasca Uranium Multidisciplinary Study, which is an integrated partnership between Cameco Corporation, COGEMA Resources, academia (including University of Alberta and the universities of Saskatchewan and Laurentian University), the Geological Survey of Canada, the Saskatchewan Geological Survey, and the Alberta Geological Survey (Jefferson and Delaney, 2001).

The goal of this research is to develop a better understanding of Athabasca stratigraphy, sedimentology and alteration, and their roles in the localization of uranium in the Maybelle River area. A major difference between the Maybelle River area and other uranium deposits of the Athabasca Basin is the regional restriction of the Fair Point Formation beneath the Manitou Falls Formation in the western Athabasca Basin (Ramaekers, 1990, 2003a,b), and the implications for uranium mineralization in this unique stratigraphic situation. In the central and eastern Athabasca Basin, uranium mineralization is located at or near the unconformity between permeable units of the basal Manitou Falls Formation of the Athabasca Group and the underlying Paleoproterozoic basement gneisses and schists. In addition to proximity to the sub-Athabasca unconformity, other controls include basement fault and fracture-zones, and proximity to graphitic pelitic gneiss that flank structurally competent Archean granitoid domes (Quirt, 1989). In contrast, in Alberta at the Maybelle River area, a high-grade uraniferous zone (e.g., 21% U_3O_8 across 5 m core length was intersected in diamond drill hole MR-39 and 17% U_3O_8 across 2 m core length in hole MR-34; see Orr, 1989) was intersected at the base of the Fair Point Formation near the unconformity with underlying metamorphosed basement sedimentary and igneous rocks.

A Regional Geologic Model

The Athabasca Group unconformably overlies crystalline basement rocks of the Rae Province in the northwest and the Hearne Province to the east (Hoffman, 1990) (Fig. 3-1). The Rae Province is composed of mainly felsic to mafic gneisses, granulites, locally mylonitized, granitic migmatites, and granitoid plutons (Ruzicka, 1993). The Hearne Province mobile zone is composed of granitoid gneisses, shelf-type metasedimentary rocks and minor intercalated volcanic rocks (Lewry and Sibbald, 1980).

During the Trans-Hudson Orogen, ca. 1700-1740 Ma (Quirt, 1997), the Archean basement and Paleoproterozoic metasedimentary rocks were uplifted and subject to erosion (Ramaekers, 1990, 2003a,b). Deposited above this are the Mesoproterozoic sandstones of the Athabasca Group. Fluviatile sands and pebbles were deposited in the intracratonic Athabasca Basin that formed through tensional tectonics (Ramaekers and Hartling, 1978) at about 1700 Ma (Wheatley et al., 1999). The thickness of the Athabasca Group sediments was originally up to 5 km (Pagel et al., 1980), but presently it is estimated to be over 2200 m (Sibbald and Quirt, 1987).

After deposition, diagenesis occurred during deep burial of the Athabasca Group sediments. This produced the present kaolinite/illite/hematite assemblage caused by alteration and recrystallization of the detrital clays, iron oxyhydroxides and Fe-Ti oxides (Quirt, 1997). Diabase dykes intruded in a northwest-southeast trend at ca. 1270 Ma (Quirt, 1997). During this time formation of high-grade unconformity-type uranium deposits resulted from diagenetic-hydrothermal basement-sandstone fluid interaction (e.g. Hoeve and Sibbald, 1976, 1978; Hoeve et al., 1980; Pagel et al., 1980; Hoeve and Quirt, 1984, 1987). The uraniferous zones are structurally controlled both with relation to the sub-Athabasca unconformity, and the basement fault and fracture-zones. As well, they are lithologically localized above and along or in graphitic pelitic gneiss that generally flank structurally competent Archean granitoid domes (Quirt, 1989).

Three ages of uranium mineralization occurred at ca. 1450 to1250 Ma, 1100 to 1050 Ma and 400 to 250 Ma. The first stage of mineralization was the main ore-forming event, and is coeval with tectonic reactivation and diabase magmatic activity. The second stage of mineralization occurred during the Grenvillian tectonic reactivation and a pulse of diabase magmatism (Quirt, 1997). Both stages 1 and 2 occurred during continuing conditions of deep burial and high-grade diagenesis (Pagel, 1975a,b). The third stage of uranium deposition occurred during active uplift and tectonic reactivation that acted to channel surface (meteoric) waters to the deep Athabasca aquifer and caused the retrograde-diagenetic kaolinitization and remobilization of uranium, The 3rd stage occurred at low temperatures (<50°C) (Hoeve and Quirt, 1984; Kotzer and Kyser, 1995), and ultimately determined the preservation state of the original uranium mineralization.

Deposit characteristics

The general characteristics of unconformity-type uranium deposits are, in general, well known and have been summarized by several authors (e.g., Dahlkamp, 1978; Kirchner et al., 1980; Hoeve and Sibbald, 1976, 1978; Clark and Fogwill, 1985; Jones, 1980; Wallis et al., 1983; Wray et al., 1985; Tremblay, 1982; Sibbald et al., 1981). Several large and economically important uranium deposits of polymetallic (U-Ni-Co-As) composition in the Athabasca Basin, occur in proximity to the sub-Athabasca unconformity. Examples include the Key Lake, Cigar Lake, Collins Bay 'A', Collins Bay 'B', McClean, Midwest, Sue and Cluff Lake 'D' deposits (Fig. 3-1).

Unconformity-type uranium deposits in the Athabasca Basin take the form of high-grade core which concentrates in pods, at or just below the unconformity, and a lower grade envelope that extends into the sandstone or downwards into the basement. Directly surrounding the high-grade core is a shell of secondary hematite. The core exhibits a distinct zonation, being marked by predominance of arsenides and sulphides of various associated Ni-, Co-, Fe-bearing minerals. The envelope also exhibits a distinct zonation marked by predominance of base metal sulphides.

The ore bodies are also surrounded by illite, chlorite and kaolinite or carbonate alteration haloes, overprinted by hematite and/or limonite staining. The host rock alteration that typically surrounds uranium deposits in the Athabasca Basin is characterized by the conversion of framework and matrix grains to clay minerals, intensive quartz dissolution, locally associated collapse of the overlying sandstone (e.g. Cigar Lake) and residual enrichment of clay, a shell of secondary hematite, oxidation/reduction features, extensive bleaching, formation of euhedral quartz veins, tourmaline, chlorite ± siderite alteration, destruction of graphite, and formation of solid hydrocarbons (Quirt, 1997; Ruzicka, 1997). Some alteration haloes are plume-shaped and locally extend several hundreds of metres above the unconformity, but are smaller, funnel-shaped and converging downwards onto the fault zone below the unconformity (Ruzicka, 1997).

Post-ore alteration, caused by meteoric waters circulating along the fault zones, succeeded the main episode of uranium mineralization. This caused corrosion of the ores; formation of new alteration minerals, particularly chlorite, smectite and mixed-layer clays; and kaolinization of illite and quartz (Ruhrmann and von Pechmann, 1989).

Local geology

Basement

The north-western part of the Athabasca Basin in Alberta is underlain by rocks of the Rae Structural Province (Hoffman, 1988). Where these basement rocks underlie the Athabasca Basin sedimentary rocks there typically is an alteration zone of weathered basement (i.e., a regolith or saprolitic zone) that overlies fresh basement. The altered basement occurs immediately below the unconformity and typically comprises a bleached, then a red and finally a green zone that grades into fresh basement. The thickness and extent of each of these three types of alteration zones are variable in the Maybelle River study area. A bleached zone, comprised of chloritic alteration, occurs in and around the mineralized hole, but is not seen further away. Directly below the bleached zone, or in some holes, directly underlying the unconformity, is the red zone where hematite and clay predominate (Ramaekers, 1990). This zone, when present, ranges from 2 to 30 m in thickness. Below this is the green zone, ranging from 1 to 8 m where present, where chlorite and illite predominate (Ramaekers, 1990).

Basement rocks underlying the basin in Alberta consist of four types of granitoids and two mylonitic rock types, as described and interpreted by Wilson (1986), and more recently by Pana (pers. commun., 2003) at the Alberta Geological Survey (AGS). At Maybelle River, basement rocks are mainly granitoid gneiss, mylonite, and graphitic mylonite. Many of the basement rocks along the Maybelle River trend contain mylonite; as well, nine drill cores (specifically MR-29, -39, -40, -41, -47, -50, -53, -80 and -82) along the east side of the trend, intercepted graphitic mylonite. This graphitic unit is most likely the cause of the EM conductor that occurs along this trend on company maps (Orr, 1989). The mylonites indicate a major structural zone of high strain and shear along this trend. As well, there are probably one or more brittle faults.

Athabasca Group

Five formations of the William River Sub-Group of the Athabasca Group are present in Alberta: Fair Point, Manitou Falls, Lazenby Lake, Wolverine Point, and Locker Lake (Ramaekers, 1990, 2003a,b). Three of these formations occur in the Maybelle River study area; these are the Fair Point, Manitou Falls and the Lazenby Lake formations.

The upper Fair Point Formation member (FPu), as redefined from regional mapping along the Maybelle River and Net Lake Trends by Post (pers. commun., 2003) at the AGS, is the lowest representative of the Athabasca Group at Maybelle River (Fig. 3-3). It contains course grained massive sandstones with disseminated pebbles, interbedded pebbly sandstones, thin conglomerate beds, and local siltstone beds and/or

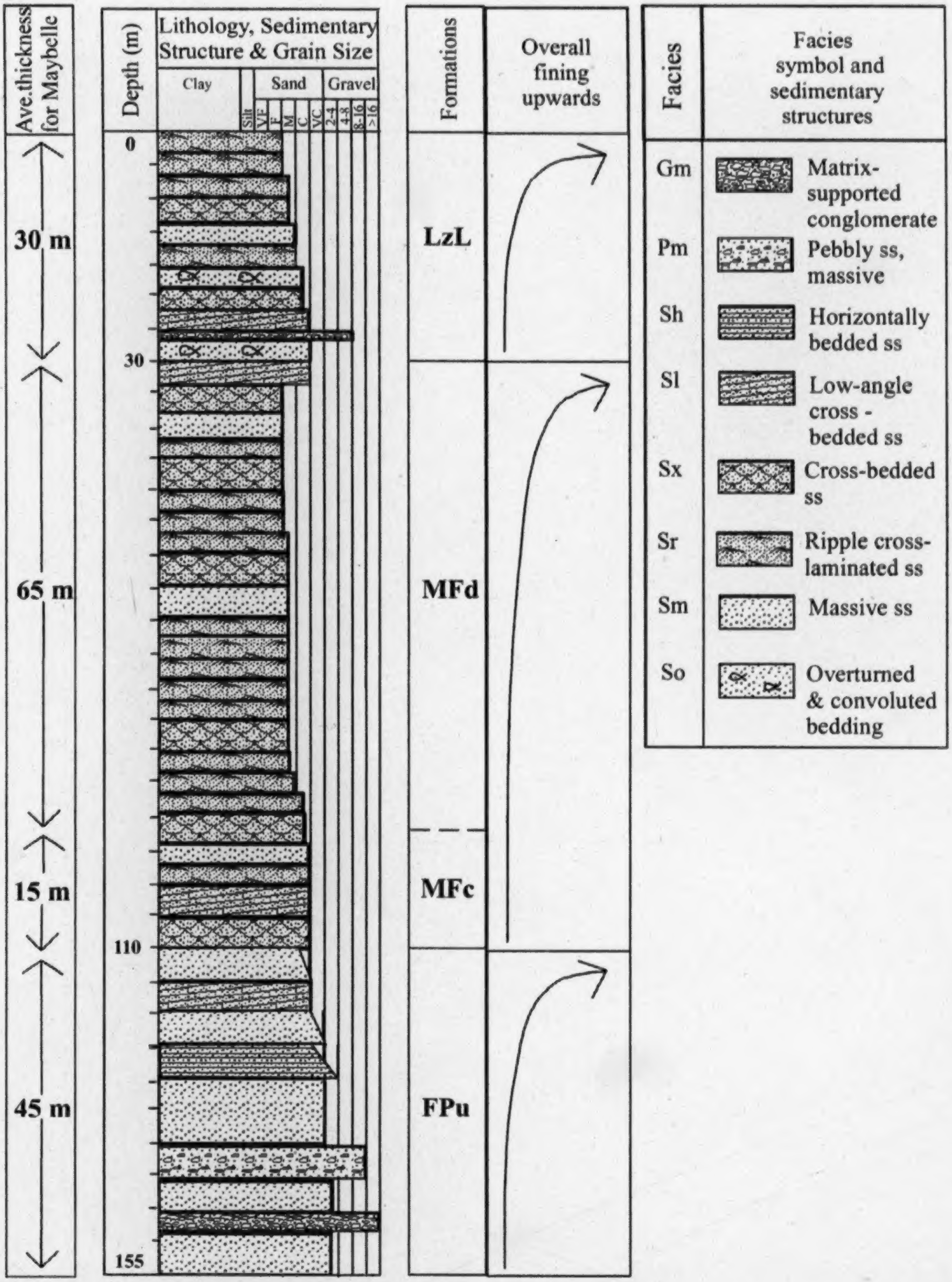

Ave.thickness for Maybelle
30 m
65 m
15 m
45 m
Depth (m)
0
30
110
155
Lithology, Sedimentary Structure & Grain Size
Clay
Silt
Sand
VF
F
M
C
VC
Gravel
2-4
4-8
8-16
>16
Formations
LzL
MFd
MFc
FPu
Overall fining upwards
Facies
Facies symbol and sedimentary structures
Gm
Matrix-supported conglomerate
Pm
Pebbly ss, massive
Sh
Horizontally bedded ss
Sl
Low-angle cross - bedded ss
Sx
Cross-bedded ss
Sr
Ripple cross-laminated ss
Sm
Massive ss
So
Overturned & convoluted bedding

Fig. 3-3. Type stratigraphic section for the Maybelle River area. Average thicknesses for formations within the study area as well as typical sedimentary beds and structures are shown.

clay intraclasts. The Manitou Falls Formation (MFd) is a moderately sorted, fine to medium grained sandstone, containing common but <1% clay intraclasts as well as minor mudstone and siltstone interbeds (Fig. 3-3). The basal few metres of this unit are coarse grained sandstone with disseminated granules and small pebbles (MFc). The basal portion of the Lazenby Lake Formation (LzL) is the youngest component of the Athabasca Group that is preserved in the Maybelle River study area and is overlain unconformably by Quaternary deposits. The Lazenby Lake Formation is a fine- to medium-grained sandstone with disseminated pebbles and pebbly sandstone beds at the base.

Sampling Procedures and Analytical techniques

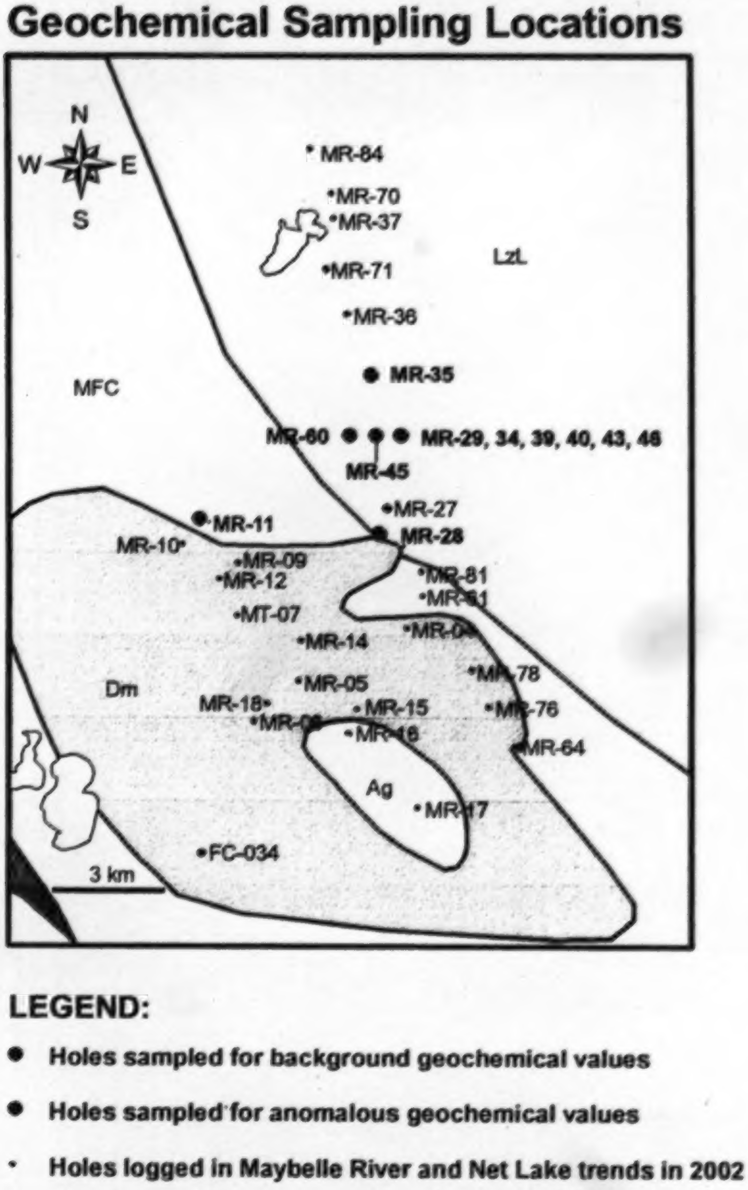
Logging procedure

The focus of this study was to log in detail core from 16 diamond drill holes and study selected aspects of the Athabasca Group and underlying basement at and near the Maybelle River uraniferous zone (Fig. 3-2). Drill holes were chosen with tight spacing nearest to and including MR-39, with the other 15 holes radiating outward up to 2 km. These holes were chosen to get better coverage around the deposit in order to map the extent of the alteration halo and the stratigraphy characterized by the Athabasca Group. The Athabasca Group strata were logged on a metre-by-metre scale on a Palm© hand-held computer (PDA) that was programmed with Microsoft Access database software (Appendix 1). In total, 37 parameters were captured, which included the Jefferson et al. (2001) parameters, plus several additional parameters listed in Kupsch and Catuneanu (2002).

Whole rock geochemical analysis

Drill-core samples were collected for geochemical analysis from eleven drill holes located in and around the uraniferous zone (Appendix 6). Samples were chosen from eight drill holes along section (MR-29, -34, -39, -40, -43, -45, -46, and -60) of high-grade uranium mineralization, alteration haloes associated with uranium mineralization, and unmineralized Athabasca Group sandstones and basement rocks proximal to uranium mineralization (Fig. 3-4). Unmineralized samples from Athabasca Group sandstones and basement rocks in three drill holes (MR-11, -28, and -35) barren of uranium mineralization represent background samples.

Split core approximately 8 cm in length was taken from each drill hole sample location. The sampling procedure for the eight drill holes was taken at varying core metre separations down hole. The sampling procedure for the basement is 2 m below the unconformity into sample spacing of 10 m to the bottom of the hole. The sampling procedure for the Fair Point Formation is 2 m above the unconformity into a sample spacing of 4 m to the top of the FP. The sampling procedure for the Manitou Falls Formation has the lowest sample approximately 4 m above the uppermost FP sample, with the remaining samples at 10 m intervals. Only six samples up hole are taken from the MF in drill holes MR-34, -43, and -46 due to the tight spacing and overlap of the


N
W
E
S
MR-84
MR-70
MR-37
MR-71
LzL
MR-36
MR-35
MFC
MR-60
MR-29, 34, 39, 40, 43, 46
MR-45
MR-27
MR-11
MR-28
MR-10
MR-09
MR-12
MR-81
MT-07
MR-14
MR-78
Dm
MR-05
MR-18
MR-15
MR-76
MR-16
MR-64
Ag
MR-17
FC-034
3 km

Geochemical Sampling Locations

LEGEND:

- ● Holes sampled for background geochemical values
- ● Holes sampled for anomalous geochemical values
- • Holes logged in Maybelle River and Net Lake trends in 2002

Fig. 3-4. Location map showing drill holes sampled for whole rock geochemical analysis. LzL = Lazenby Lake Formation, MFc = Manitou Falls c member, Dm = Devonian carbonates, Ag = basement.

surrounding 5 drill holes. The sampling procedure for the Lazenby Lake Formation is at 10 m intervals to the base of the overburden. The uppermost FP and MF samples and the lowermost MF and LzL samples are adjusted so they have at least 1 m spacing from the MF/FP and LzL/MF contacts.

The sample procedure for the three background holes was taken down hole with no sampling in the LzL or the basement. The sampling procedure for the FP is 2 m above the unconformity and then into a sample spacing of 4 m to the top of the FP. The sampling procedure for the MF has the lowest sample approximately 4 m above the uppermost FP sample. Four samples above the base MF sample are at 10 m intervals. The uppermost FP and lowermost MF samples are adjusted so they have at least 1 m spacing from the MF/FP contact.

In total 285 rock samples from core were collected: 265 consist of pieces of core and 20 are powders (10 to 11 g samples) from core. Each sample was analysed at ACME Analytical Laboratories Ltd., 852 East Hastings St., Vancouver, B.C., Canada. The core was pulverized using mild steel (case hardened) to minimize sample contamination. The samples were analysed in order of increasing sample number. Whole rock analysis by $LiBO_2$ fusion – Induction Coupled Plasma (ICP) – Emission Spectroscopy (ES) was done on Group 4A elements (Appendix 7). The Group 4B elements had 29 element ICP- Mass Spectrometer (MS) analysis from a $LiBO_2$ fusion combined with 38 element ICP-MS analysis from an aqua regia digestion (Group 1F-MS) which required 5 grams of sample pulp (Appendix 7). Group 1F elements analysis are performed on 15 g of material for the core samples and on 7.5 g of material for the samples supplied to Acme as powders (Appendix 7). Statistical analysis done on the data is listed in Appendix 7. Analytical results were plotted up using Arcview software (Appendix 8).

PIMA analysis

Drill-core samples were collected for PIMA analysis from eight drill holes located in and around the uraniferous zone in the Maybelle River area. Visible and near-infrared reflectance spectrometry has been used to identify clay minerals and to estimate clay mineral proportions in sandstone and basement rocks in the Athabasca Basin (Earle, 1996). The PIMA II instrument has a spectral range from 1300 to 2500 nm. Samples were chosen from eight drill holes (MR-29, -34, -39, -40, -41, -43, -48 and -53) of high-grade uranium mineralization, alteration halos associated with uranium mineralization, and unmineralized Athabasca Group Sandstones and basement rocks proximal to uranium mineralization (Fig. 3-2). Lazenby Lake, Manitou Falls, and the Fair Point formations are present in all 8 drill holes.

The boxes storing the core contain 4 m of core in three rows. A piece of core from the middle of each row was sampled providing a sample spacing of approximately 1.33 m down hole. Samples were taken from the top of the LzL into the top of the basement. Fresh surfaces on the core samples were analysed by the PIMA unit borrowed from Cameco Corporation. The PIMA data was sent to Ken Wasyliuk at Cameco to analyze and convert the data to excel spreadsheet form (Appendix 9). Parameters were plotted using Rockware's LogPlot 2001 software (Appendix 10).

Results and discussion

Host Rock Alteration

A main component of this drill core study is to define and map the alteration zone surrounding the Maybelle River uranium mineralization. Preliminary observations from core within the Maybelle River study area revealed alteration features that are similar to those associated with uranium deposits in the eastern Athabasca Basin. For example, immediately surrounding the uraniferous zone there is a high abundance of fractures occurring in the middle to base of the MF due to quartz dissolution (Fig. 3-5). The corrosion of quartz grains and subsequent precipitation of quartz overgrowths has resulted in an overall higher porosity that increases closer to the mineralized zone; this interpretation is supported through thin section work. In contrast, further out from the uraniferous zone in hole MR-39 there are low amounts of fractures in core except for, in places, a slight increase at the mid to base of the MF. Clay alteration that completely replaces sections of sandstone or fault zones and the surrounding wall rock up to 2 m in thickness occurs mainly in the FP, with minor replacement occurring at the base of MF (Fig. 3-6). As well, locally pervasive clay replacement of sandstone or fault zones occurs further out from the uraniferous zone, but only in the FP. In general, the greatest thickness and abundance of clay alteration occurs in those holes that are closest to the uraniferous zone (e.g., MR-43, -47 and -50), and decreases further away. As well, clay filled faults and fractures occur mainly in the FP and mid to lower MF close to the uraniferous zone, with minor occurrences in the upper MF and LzL in the more distal holes. A maximum thickness of 40.0 cm of clay lining a fault/fracture occurs in hole MR-47. The clay filled faults/fractures are thicker and more abundant slightly further out than in the immediate uraniferous zone.

Fig. 3-5. Highly fractured area as well as bleaching of the MF in MR-40 at 123-135 m depth.

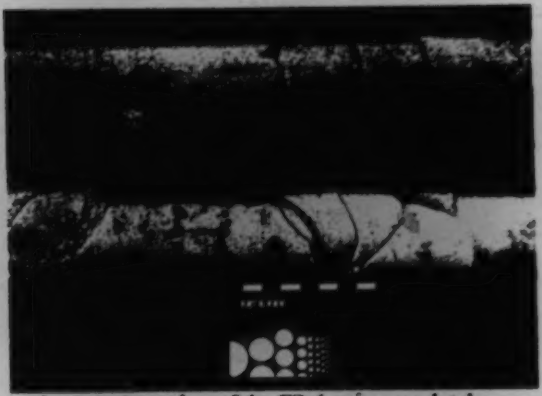


Fig. 3-6. A portion of the FP that is completely replaced by clay in MR-47 at 186 m depth. Quartz pebbles in a conglomeratic bed still remain.

In addition to clay, other alteration minerals exist. These include late stage pyrite that exists along fractures and faults and is mainly in the MF and LzL, with minor occurrences in the FP in the farther away holes. Drusy quartz also lines fractures and faults in holes close to the uraniferous zone and is mainly in the MF, but minor occurrences of drusy quartz also exist in places in the FP (Fig. 3-7). Drusy quartz appears in the MF, LzL and upper FP in the holes further away. There is a high abundance of drusy quartz close to the uraniferous zone, but such decreases distally. Drusy quartz veins are mainly up-section in the MF, above the fractured zones. In addition to drusy quartz, fine-grained and pervasive silicification occurs in places along faults and fractures in the MF up-section in the holes immediately surrounding the uraniferous zone (Fig. 3-8). As well, such silicified zones along faults and fractures occur (a) in the mid to lower MF in the holes slightly further away from the uraniferous zone and (b) in the upper MF and LzL distally. A maximum thickness of a 50.0 cm silicified zone occurs in MR-48. Bleaching of the core increases closer to the high-grade uranium intersection (Fig. 3-5). Finally, concentrations of secondary hematite are found close to the uraniferous zone, and close to 100 volume per cent chlorite overprint the top of the red zone in the basement as seen in cores close to the uraniferous zone.

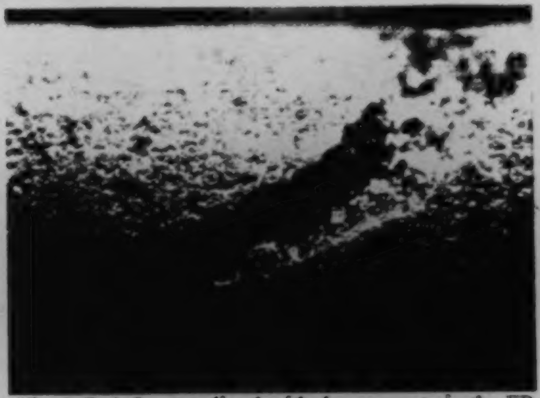


Fig. 3-7. A fracture lined with drusy quartz in the FP in MR-50 at 210 m depth.

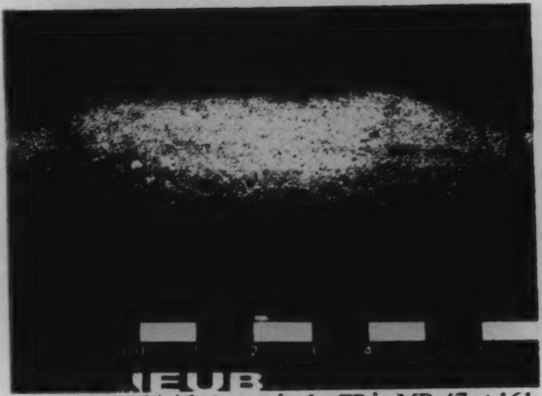


Fig. 3-8. A silicified zone in the FP in MR-47 at 161 m depth.

PIMA

PIMA studies were done on eight holes that are at or near the uraniferous zone in hole MR-39. These include: five holes on section with the uraniferous zone (i.e., MR-29, -34, -39, -40 and -43); two holes just off the zone, being located approximately 130 m to the north and south (MR-48 and -41) respectively; and one hole further away from the uraniferous zone, being approximately 700 m south (MR-53). PIMA provides a semi-quantitative estimate of the relative per cent of the interstitial clays present of several fine grained minerals, including: illite, chlorite, dickite, kaolinite, S-kaolinite and dravite (Appendix 10). The results for three selected holes are shown on Figure 3-9.

The dominant interstitial clay in Lazenby Lake Formation is illite averaging ~ 90% (Fig. 3-9), with a higher abundance, to 95%, in the furthest hole (MR-53). Kaolinite appears sporadically throughout the LzL, averaging ~ 6%, and decreases towards the base. Kaolinite is more abundant in holes (e.g., MR-40, -41 and -48) further out from the unraniferous zone. Chlorite appears mainly close to the uraniferous holes, dominantly in the east holes; it is absent or present only in minor amounts off section, and averages ~ 4% in LzL.

Almost all interstitial clay in Manitou Falls Formation is illite, averaging ~98.5% (Fig. 3-9). Kaolinite appears sporadically throughout the MF averaging ~ 1%. Chlorite averages less than (<) 1% in the MF, only occurs in holes immediately surrounding the uraniferous zone and is mostly restricted to the top part of MF near the MF/LzL gradational contact.

The dominant interstitial clay in Fair Point Formation is illite, averaging ~75% (Fig. 3-9). Dickite occurs throughout the FP, averaging ~ 17%. In general, dickite increases towards the base of the FP except in those holes that directly surround the uraniferous zone (i.e., in MR-34, -39 and -40), where it decreases towards the base and has a low abundance. Dickite's abundance can be up to ~ 60% where present in hole MR-39, but in the rest of the holes dickite abundance in places is up to a maximum of 95%. Kaolinite appears sporadically throughout the FP, and only at the base in the two mineralized holes (MR-39 and MR-34), where it can be up to ~ 4%. Chlorite in holes further away from the uraniferous zone averages 2% in the FP. In contrast, near the

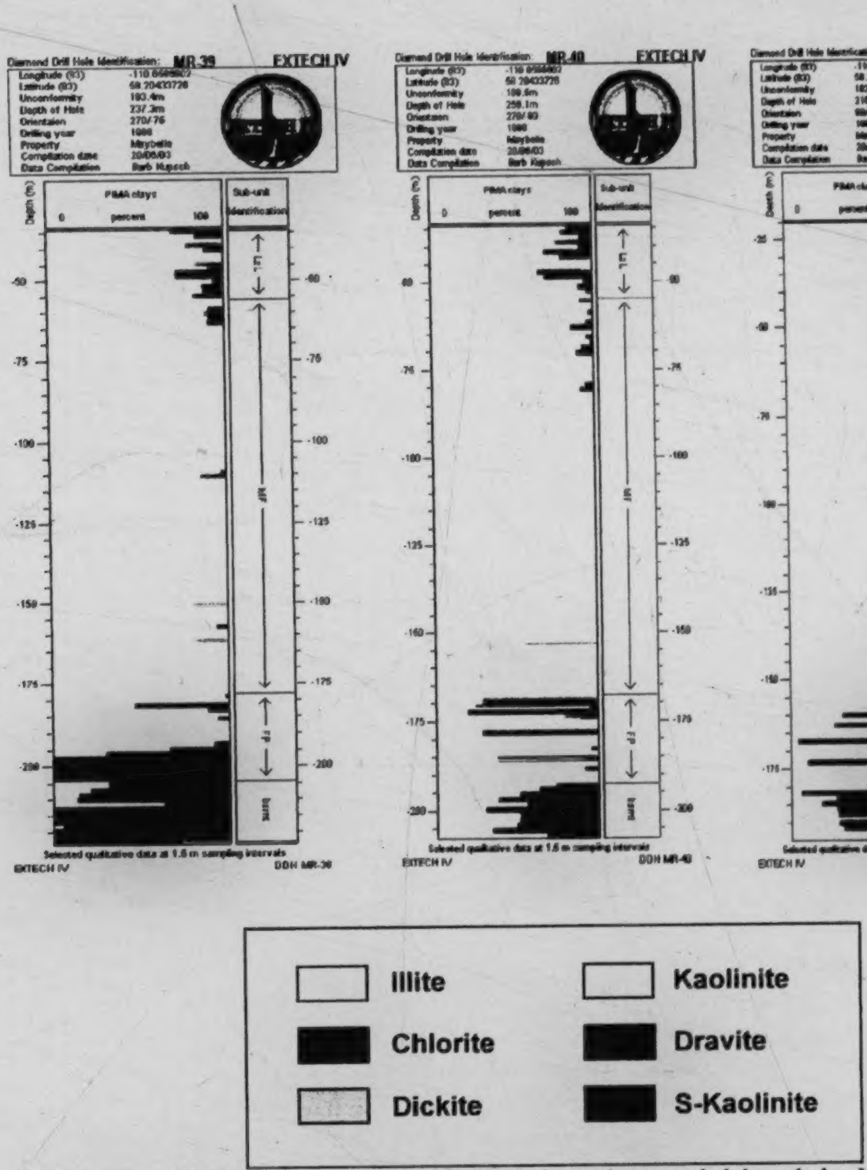


Fig. 3-9. Plots of three drill hole logs showing PIMA data. taken sampled down hole. MR-39 intersects the uraniferous zone just above the FP-basement contact, MR-40 is near the uraniferous zone, and MR-48 is further away from the uraniferous zone.

uraniferous zone chlorite can be up to 68%, but it is restricted to the base of FP in holes MR-39.

The dominant interstitial clay in the basement is chlorite (Fig. 3-9). Chlorite's abundance increases towards the mineralized holes and is absent in two holes further away (MR-41 and -48). Illite and Kaolinite represent the rest of the clays in the basement.

Illite is the dominant interstitial clay in the LzL and MF for all of the holes. Kaolinite and chlorite occur within these formations, but are minor components. Illite alteration haloes surrounding uraniferous zones are typically present at Saskatchewan uranium deposits. Thus, illite dominating the LzL and MF within the Maybelle River study area could represent an illite alteration halo whose extent exceeds the furthest drill hole (MR-53). In contrast, it could also represent the initial clay formed during diagenesis within the LzL and MF, which, in this case, means an alteration halo of a different type of illite associated with the uranium deposition process could not be detected through PIMA. The FP contains dominantly dickite and illite clays. Dickite is the dominant interstitial clay for drill holes further away from the mineralized zone, but illite dominates in the drill holes surrounding the uraniferous zone in hole MR-39. The lack of dickite in the holes closest to the uraniferous zone could be due to replacement of dickite by illite caused by the fluids accompanying mineralization. Chlorite only appears at the base of MR-39, immediately surrounding the mineralized section, and is dominant in the basement drill holes closest to the uraniferous zone. The chloritization that occurs within the sandstone and basement rocks surrounding the Maybelle uraniferous zone are typical of Saskatchewan deposits.

Lithogeochemical features

Analysis for 69 elements from 265 samples from eleven drill holes from Athabasca sandstone and basement rocks were obtained to investigate the geochemical background of the Maybelle River study area (Fig. 3-4). The analytical results for these elements were plotted in each drill hole using bubble plots with the intervals selected for each 'bubble' mainly based on percentile differences as explained separately in Appendix 7. A west-to-east cross section which contains eight drill holes was constructed through the uraniferous zone, and was evaluated for anomalous values and alteration patterns (Figs. 3-10 to 3-15). As well, the analytical results from the three holes (MR-11, -28 and –35) with assumed 'background concentrations' were plotted and compared to the drill holes along the west-to-east section. The interpreted results show that (a) nine elements have a strong relationship to the mineralized zone (U, As, Ni, B, P, Mo, Co, Th and Sr), (b) seven elements have a weak relationship to the mineralized zone (Al, Ca, Au, Li, Mg, P and V), (b) forty elements appear random in holes on section as well as in the background holes, and (d) fifteen elements show some changes in concentrations between the individual formations (Al_2O_3, Cs, Eu, Ga, K_2O, La, MgO, Nb, Nd, Pr, Rb, Sm, Ta, Th and TiO_2).

Uranium: Geochemical analyses of uranium from 265 samples from basement, Fair Point, Manitou Falls and Lazenby Lake formations were compiled, statistically analyzed and plotted up on section (Figs. 3-10). Uranium was analyzed for by both the$LiBO_2$ fusion ICP-MS (4B) and aqua regia digestion ICP - MS (1F) analytical methods. As to be expected, the highest concentration of uranium is around the uraniferous and altered sandstone interval that assayed 21% U_3O_8 across 5 m in hole MR-39 between 199 m and 204 m core length and 17 % U_3O_8 over 3 m in MR-34 between 196m and 199 m core length (Orr, 1989). The minerals present in the uraniferous zone consist of massive pitchblende, cubic uraninite, coffinite, galena, pararammelsbergite, rammelsbergite, gersdorffite, nickeline, apatite and traces of gold (Orr et al., 1988). It should be noted that no samples were collected from the core box that contained the highly uraniferous intercepts in holes MR-39 and MR-34 because the

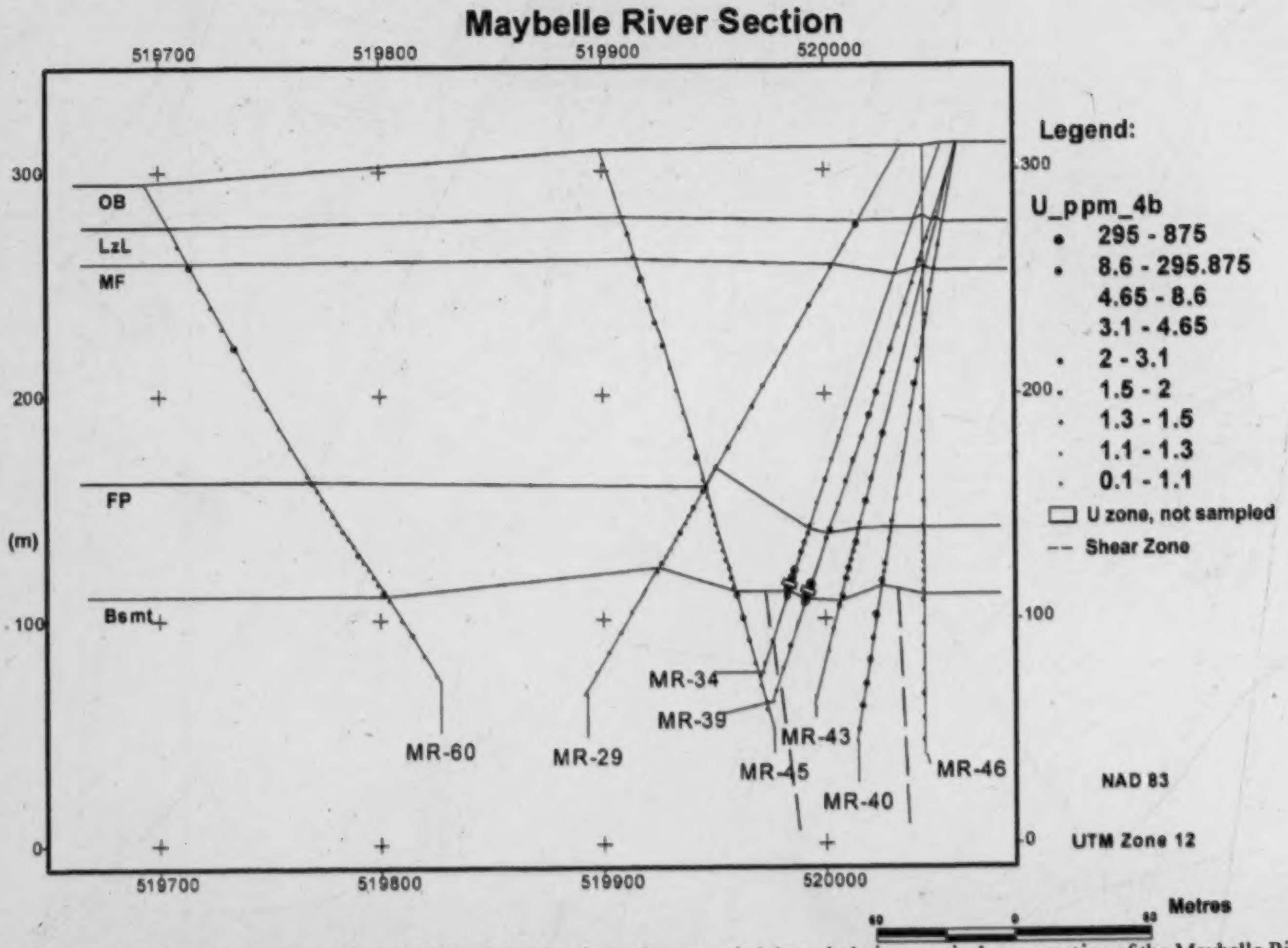

Maybelle River Section
519700
519800
519900
520000
300
200
100
0
(m)
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-43
MR-45
MR-40
MR-46
Legend:
U_ppm_4b
● 295 - 875
● 8.6 - 295.875
4.65 - 8.6
3.1 - 4.65
• 2 - 3.1
• 1.5 - 2
• 1.3 - 1.5
. 1.1 - 1.3
. 0.1 - 1.1
☐ U zone, not sampled
-- Shear Zone
NAD 83
UTM Zone 12
60
0
60
Metres

Fig. 3-10. Geochemical plot of uranium (G4B method) showing values sampled down hole in a vertical cross section of the Maybelle River study area surrounding mineralization. Values represented by bubbles are determined in Appendix 6. MR-29, -43, -60 are offsection to the N and MR-45 to the S which accounts for the slightly offset Formation boundaries between holes.

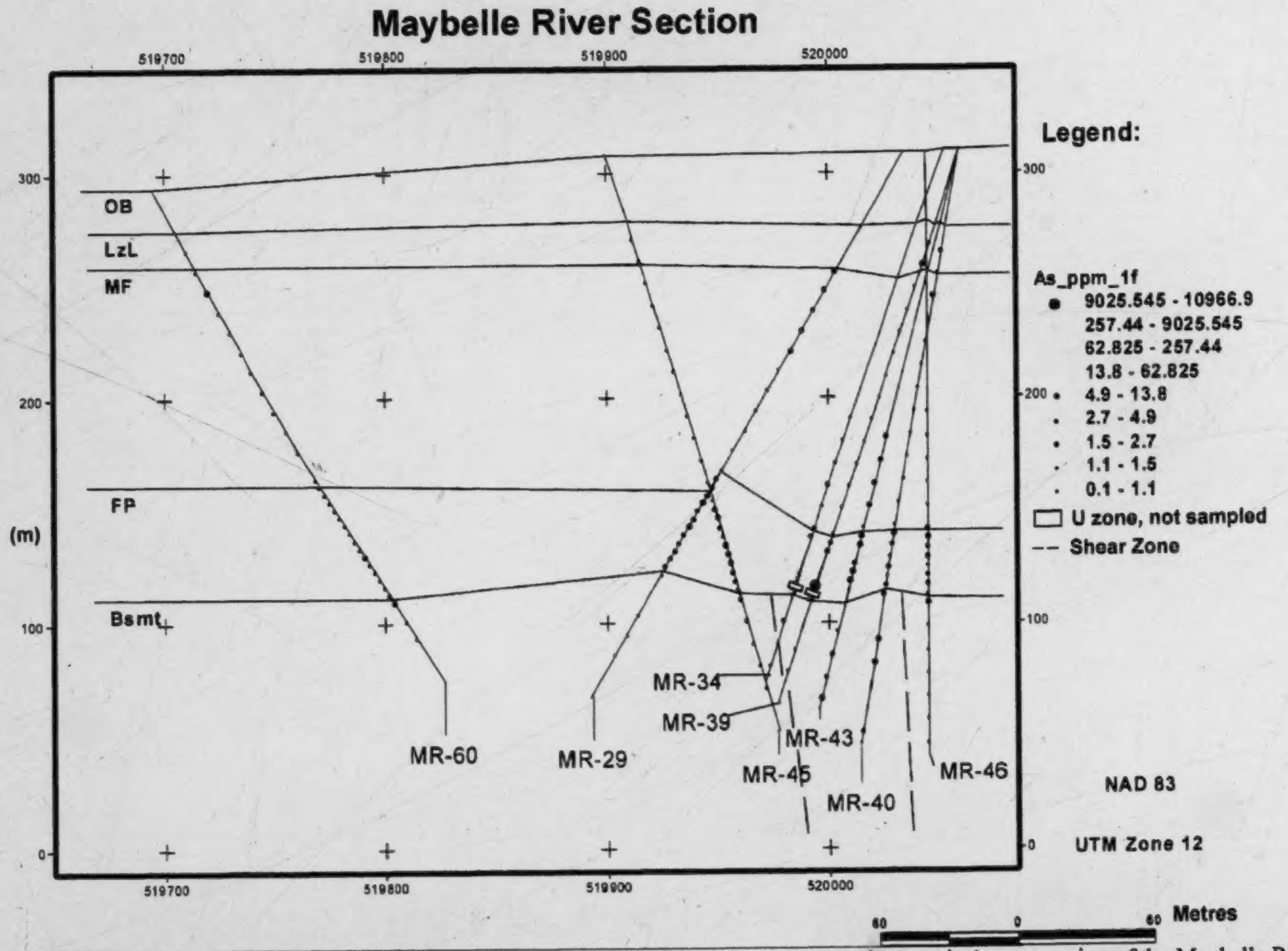

Maybelle River Section
519700
519800
519900
520000
300
200
(m)
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-43
MR-45
MR-40
MR-46
Legend:
As_ppm_1f
● 9025.545 - 10966.9
257.44 - 9025.545
62.825 - 257.44
13.8 - 62.825
• 4.9 - 13.8
. 2.7 - 4.9
. 1.5 - 2.7
. 1.1 - 1.5
. 0.1 - 1.1
▭ U zone, not sampled
-- Shear Zone
NAD 83
UTM Zone 12
60
0
60
Metres

Fig. 3-11. Geochemical plot of arsenic (G1f method) showing values sampled down hole in a vertical cross section of the Maybelle River study area surrounding mineralization. Values represented by bubbles are determined in Appendix 6. MR-29, -43, -60 are offsection to the N and MR-45 to the S which accounts for the slightly offset Formation boundaries between holes.

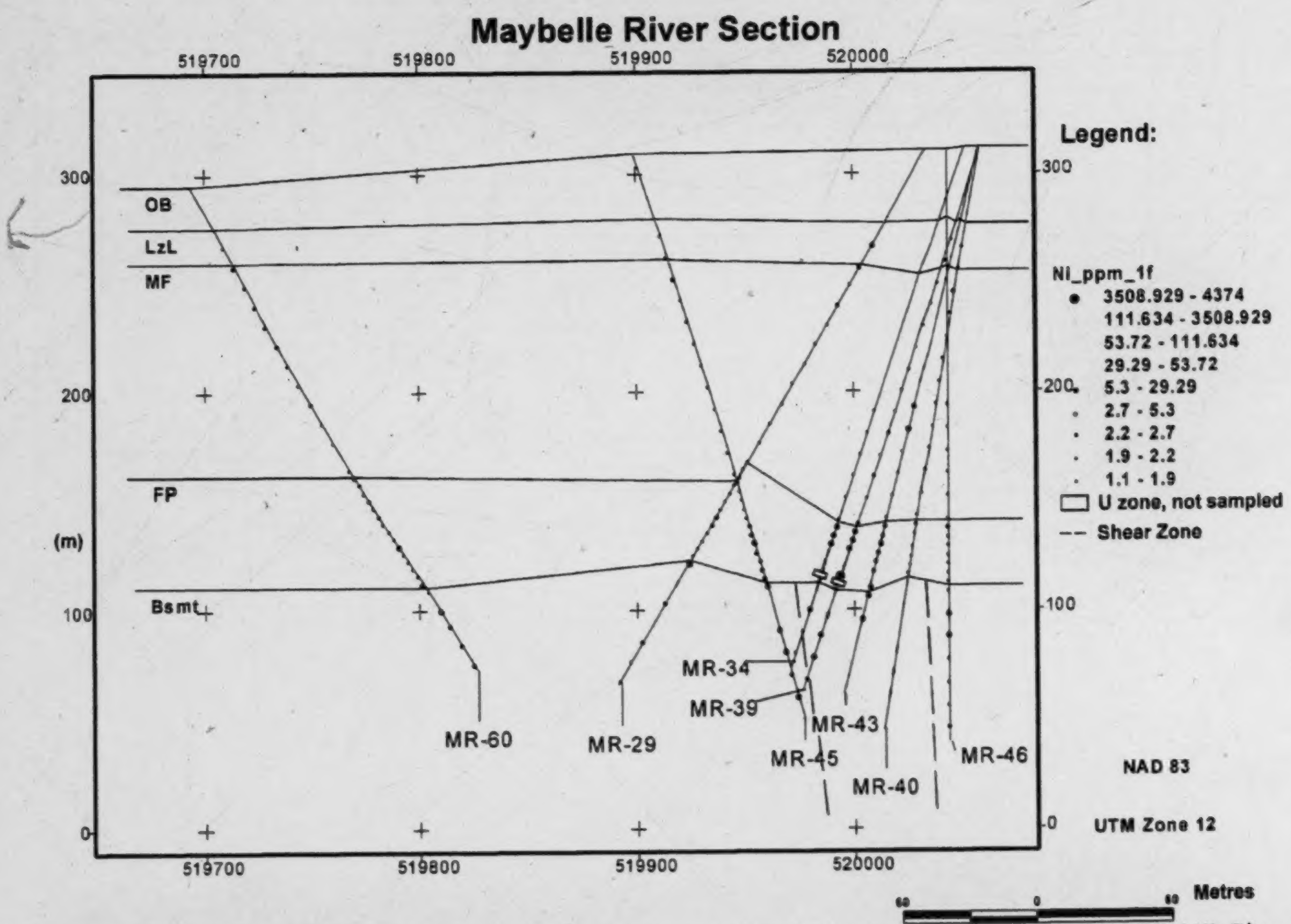


Fig. 3-12. Geochemical plot of nickel (G1F method) showing values sampled down hole in a vertical cross section of the Maybelle River study area surrounding mineralization. Values represented by bubbles are determined in Appendix 6. MR-29, -43, -60 are offsection to the N and MR-45 to the S which accounts for the slightly offset Formation boundaries between holes.

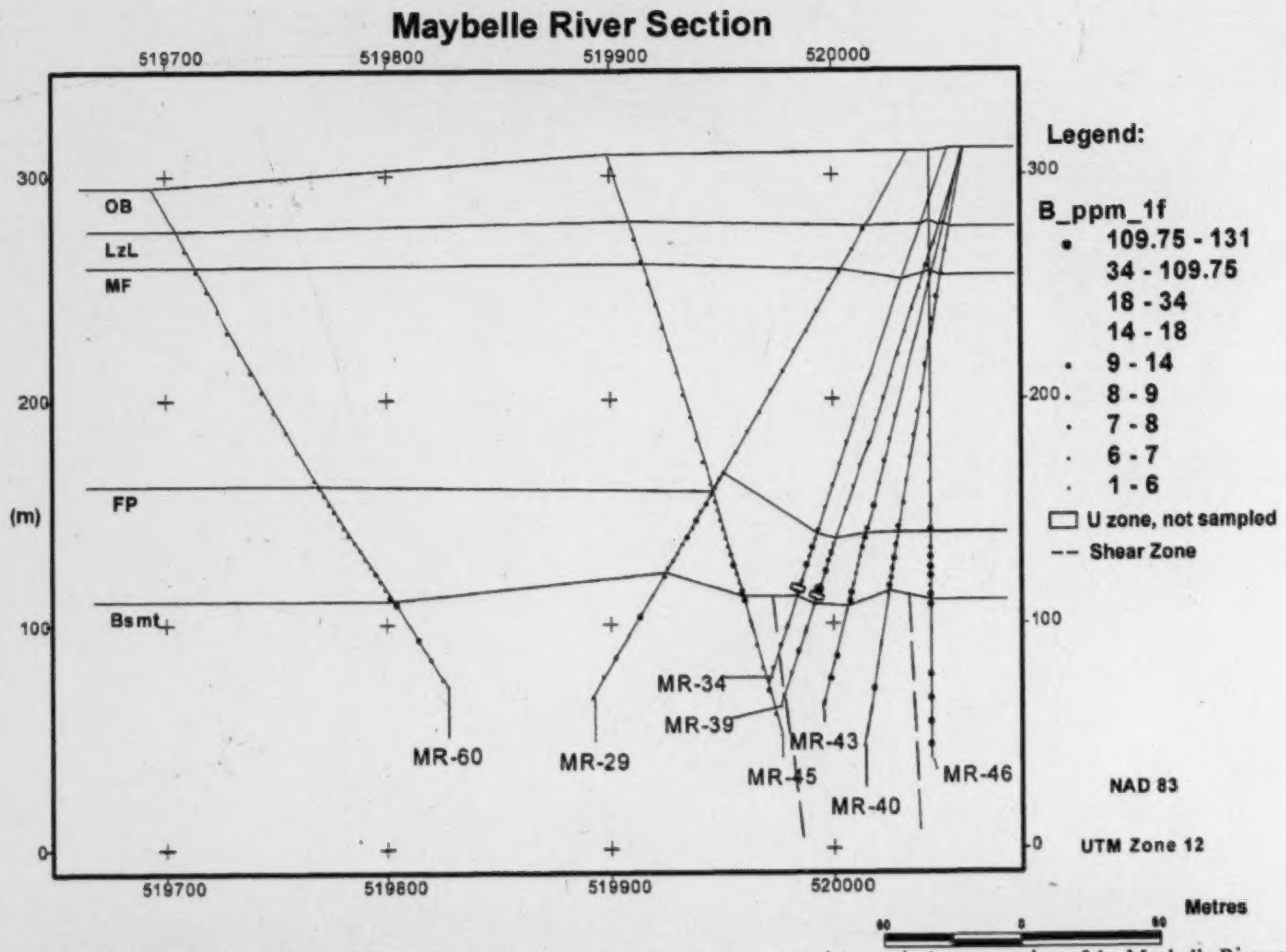


Fig. 3-13. Geochemical plot of boron (G4B method) showing values sampled down hole in a vertical cross section of the Maybelle River study area surrounding mineralization. Values represented by bubbles are determined in Appendix 6. MR-29, -43, -60 are offsection to the N and MR-45 to the S which accounts for the slightly offset Formation boundaries between holes.

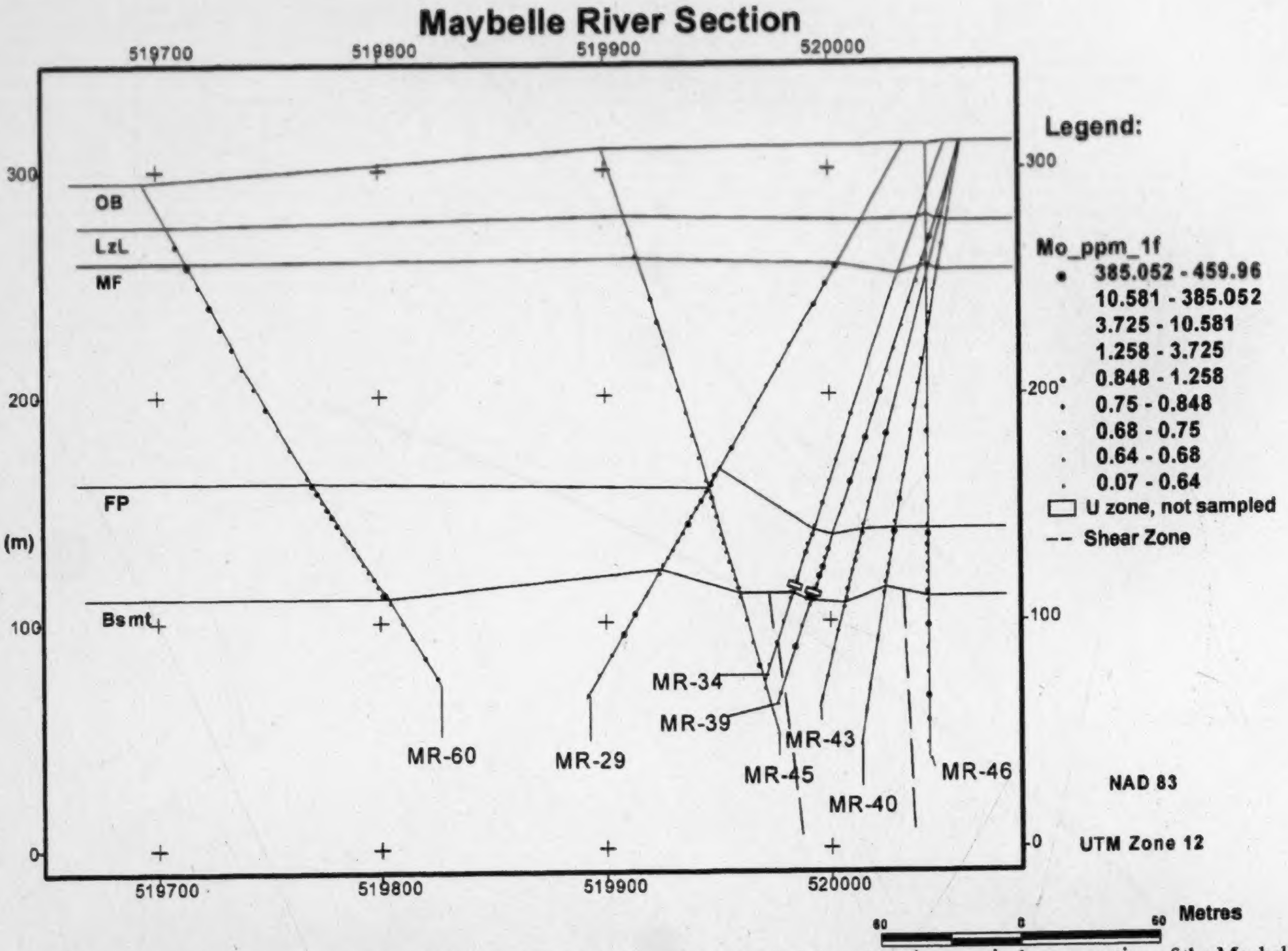


Fig. 3-14. Geochemical plot of molybdenum (G1F method) showing values sampled down hole in a vertical cross section of the Maybelle River study area surrounding mineralization. Values represented by bubbles are determined in Appendix 6. MR-29, -43, -60 are offsection to the N and MR-45 to the S which accounts for the slightly offset Formation boundaries between holes.

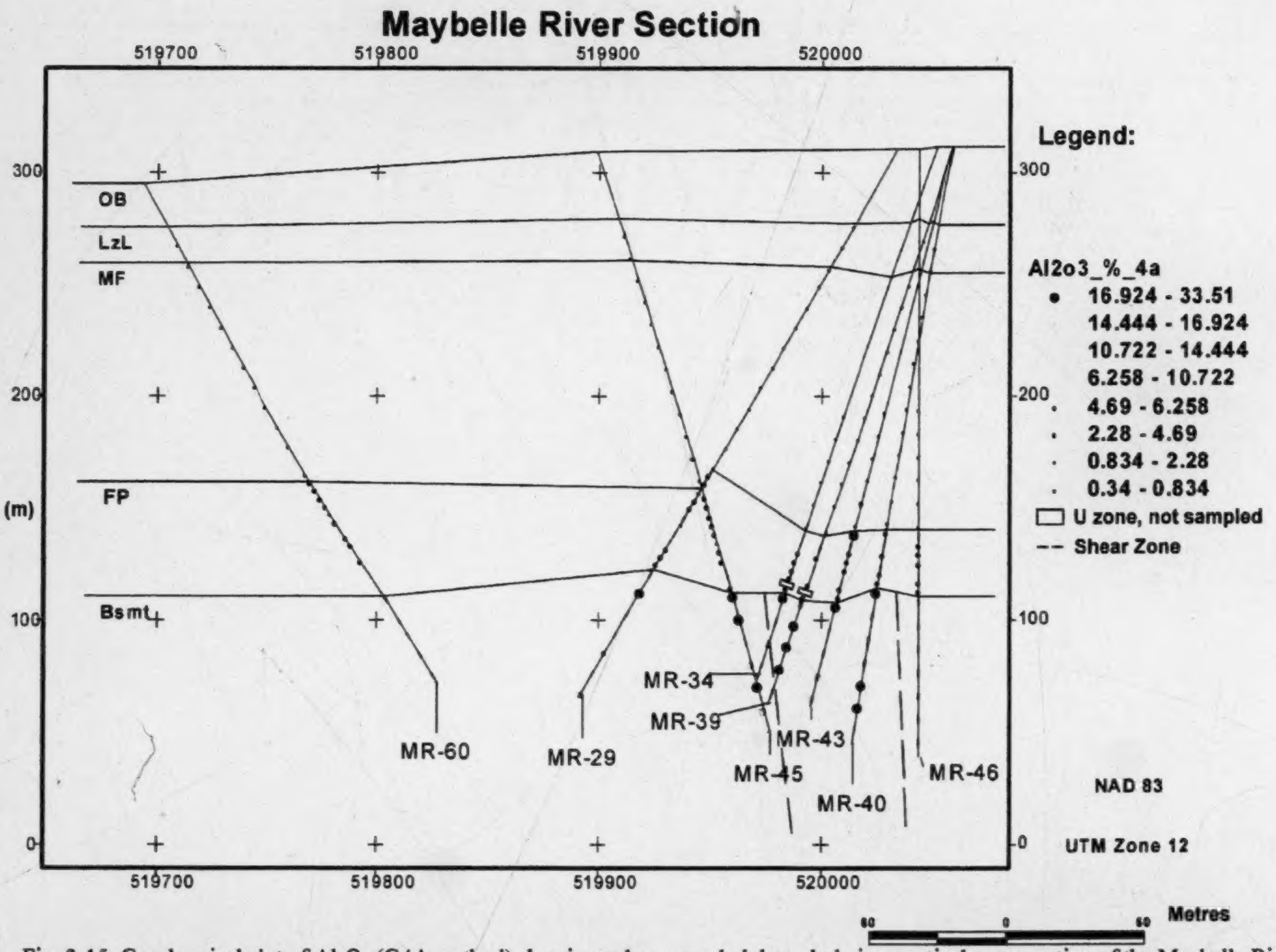


Fig. 3-15. Geochemical plot of Al_2O_3 (G4A method) showing values sampled down hole in a vertical cross section of the Maybelle River study area surrounding mineralization. Values represented by bubbles are determined in Appendix 6. MR-29, -43, -60 are offsection to the N and MR-45 to the S which accounts for the slightly offset Formation boundaries between holes.

core is now stored at Key Lake, Saskatchewan, which explains the lack of high uranium results below about 199 m core length in hole MR-39 and below about 195 m in hole MR-34. Although these high grade uraniferous zones were not sampled in this study, nevertheless samples were taken surrounding the mineralized interval. A sample collected from MR-39, about 1 m above the lens of massive pitchblende, contains the highest uranium concentration of 298.7 ppm (4B method).

The distribution pattern of U from both the 4B and 1F analytical methods is very similar (Figs. 3-10). Anomalous concentrations exist in the Fair Point Formation closest to the uraniferous zone and decrease radially outwards. Anomalous uranium results are mostly low in the FP 65 m laterally, although a few higher uranium results exist just above the unconformity in hole MR-60 which is 195 m away. Uranium concentrations in the Manitou Falls Formation are 'anomalous' above the uraniferous zone in holes MR-39 and MR-34. The highest uranium result in the overlying MF is 4 ppm (4B method) and occurs about 85 m above and slightly to the east of the uraniferous zone in MR-43 (Fig. 3-10). This uraniferous halo reaches up to 150 m radially outwards from the uraniferous zone in FP, and occurs at and near the top of the MF in holes MR-45 and MR-60. Finally, Lazenby Lake Formation contains higher uranium concentrations locally directly above the uraniferous zone, with the highest uranium result being 3 ppm (4B method) in MR-29.

The basement rocks contain higher concentrations of uranium closer to the uraniferous zone in MR-39, including an anomalous result of up to 13 ppm (4B) slightly to the east in hole MR-40 (Fig. 3-10). In general, the highest uranium concentrations in basement are along the faulted zone and within the regolith below, but near hole MR-39.

Arsenic: Anomalous arsenic concentrations dominate in the FP closest to the uraniferous zone and decrease radially outwards (Fig. 3-11). The highest arsenic result, 10967 ppm, occurs 1 m above the uraniferous zone in hole MR-39. The highest arsenic results exist in the FP in holes MR-34, MR-39 and MR-43, decrease both west and east but are still relatively high throughout the FP within the surrounding five drill holes MR-29, MR-40, MR-43, MR-45 and MR-46. As a result, the arsenic halo within the FP is larger than 65 m radially. At least westerly the arsenic concentrations decrease, although a few elevated arsenic results occur 195 m away at and near the base of FP within hole MR-60. Within the MF a few higher arsenic concentrations occur above the uraniferous zone, with the highest arsenic concentration, 20 ppm, in the MF occurring in MR-43 about 85 m above the uraniferous zone in hole MR-39. The arsenic halo reaches out up to 140 m radially upwards from the uraniferous zone, with elevated arsenic occurring at the top of the MF in MR-40and in the upper LzL there is 68 ppm in MR-29. In general, the extent of the arsenic halo is smaller than the uranium halo.

The basement rocks contain high concentrations of arsenic close to the Maybelle deposit, including an anomalous result up to 99 ppm, close to the mineralized zone in MR-39. In general, the highest arsenic results are concentrated along the fault zone and within the regolith beneath hole MR-39.

Nickel: Anomalous nickel concentrations in the FP are similar to that for both U and As, being highest closest to the uraniferous zone and decreasing radially outwards (Fig. 3-12). The highest nickel result is 4374 ppm (1F method) and occurs 1 m above the highly uraniferous intercept in hole MR-39. In general, the extent of the anomalous nickel halo within the FP is somewhat less than the uranium and arsenic haloes, being about 45 m radially. To the west and east nickel concentrations decrease, although in places a few anomalous amounts of nickel occur in MR-29 and 195 m away within MR-60. Within the MF, anomalous concentrations of nickel are generally quite restricted, although there are a few elevated nickel concentrations above the uraniferous zone. The highest nickel result, 9 ppm (1F method), occurs within MR-43 approximately 85 m radially above the uraniferous zone As well, 115 ppm Ni (4A method) occurs approximately 40 m above the uraniferous zone within MR-34. Vertically, the nickel halo reaches out up to 140 m radially from the uraniferous zone at the top of the MF in MR-40 and in LzL higher nickel concentrations, 30 ppm (1F method), exist very locally in MR-29.

Similar to U and As, the basement rocks contain higher nickel concentrations below and relatively close to the overlying uraniferous zone. The highest nickel concentration, 361 ppm (1F method), is in hole MR-39. In general, most of the elevated or anomalous nickel concentrations are along the underlying fault zone and within the regolith.

Associated elements with elevated concentrations: Anomalous boron concentrations occur in the FP closest to the uraniferous zone and decrease radially outwards (Fig. 3-13). The highest boron result, 131 ppm, occurs 1 m above the highly uraniferous intercept in hole MR-39. In general, the lateral extent of the boron halo within the FP is somewhat better developed than that for nickel, with the boron halo within the FP extending about 60 m laterally towards the east to hole MR-46, and at least about 180 m laterally towards the west to hole MR-60 (Fig. 3-13). Vertically, the boron halo extent into the MF and LzL is very small with only a few elevated boron concentrations existing in the MF directly above the uraniferous zone. In the basement, higher concentrations of boron exist mainly close to the overlying uraniferous zone, and mainly along the unconformity within the regolith and the fault zone.

Anomalous phosphorus concentrations in the FP also occur close to the uraniferous zone and decrease radially outwards. The highest phosphorus result, 0.13 ppm, occurs 5 m above the uraniferous zone in hole MR-39. As well, anomalous phosphorous concentrations occur at the base of the FP in nearby holes MR-40, MR-43 and MR-45. Finally, the phosphorus halo within the FP radiates outwards to hole MR-60 approximately 200 m away. Vertically, the phosphorus halo in the MF is minor, although some elevated phosphorus concentrations exist at the base of the MF directly above the uraniferous zone. As with the U, As and Ni, the basement rocks contain elevated concentrations of phosphorus close to the uraniferous zone with anomalous phosphorous occurring below within the fault zone.

Some other elements have anomalous concentrations surrounding the uraniferous zone in FP sandstone and a strong positive correlation to uranium. This includes, molybdenum which has anomalous concentrations around the uraniferous zone. Molybdenum's anomalous halo is in general similar to that of boron and, to a lesser extent, arsenic (Fig. 3-14). Interestingly molybdenum has a reasonably extensive alteration halo, albeit sporadic, in the FP because it shows several elevated concentrations in both holes MR-60 to the west and MR-46 to the east. Vertically, however, there are few elevated molybdenum concentrations in the MF and LzL above and laterally from the uraniferous zone. Cobalt also has anomalous results surrounding the uraniferous zone, but with a small halo extent and elevated cobalt is restricted to the FP (Appendix 8). Thallium values are all below detection limits throughout the Athabasca sandstone except near the uraniferous zone where elevated thallium is restricted to the base of the FP within holes MR-34 and MR-39 (Appendix 8). Strontium has a reverse or negative relationship to uranium. That is, the strontium concentrations tend to be higher throughout the FP, but are lower or depleted surrounding the uraniferous zone in MR-34 and MR-39 (Appendix 8).

Seven other elements have elevated concentrations surrounding the uraniferous zone in MR-34 and MR-39, but in general they are all restricted to the base of the FP. The elements with elevated concentrations which surround the uraniferous zone, albeit at lower levels than those elements discussed above, are: aluminum, calcium and calcium oxide, gold, lithium, magnesium and magnesium oxide, potassium, and vanadium (Appendix 8). These elements generally have less of a halo extent than the previously mentioned elements, but still have a weak to small positive correlation to uranium. This positive correlation extends into the basement where these seven elements tend to be spatially associated with the regolith and faulted zone that underlies the uraniferous zone within FP.

Relation to formations: There are some 15 elements that do not have any obvious relation to uranium or its positively correlated elements, but nonetheless these 15 elements are useful for highlighting lithostratigraphy and the breaks between litho-units. For example, the elements that have higher levels within the FP as compared to the MF and LzL include: aluminum oxide, cesium, europium, gallium, potassium oxide, lanthanum, magnesium oxide, niobium, neodymium, praseodymium, rabidium, samarium, tantalum, thorium and titanium oxide (Appendix 8). As an example, Al_2O_3 is shown in Figure 3-15. Another example is cesium which has higher levels within the LzL than the MF, but generally lower levels than in the FP. Silica oxide has an opposite relationship in that the FP has lower levels of SiO_2, whereas the MF and LzL have higher levels; this presumably reflects the more orthoquartzitic nature of MF and LzL, versus the more clay rich nature of FP. As a result, it is probable that some of these elements that appears correlatable with stratigraphy, rather than with the uraniferous zone, may assist with future stratigraphic mapping within the various lower sandstone units within the Athabasca Group.

With regard to the remaining some 40 elements that were analyzed for during this lithogeochemical study, none show any obvious or consistent relationship with either the uraniferous zone or lithostratigraphic units, and hence do not appear useful for exploration or lithologic mapping purposes (Appendix 8).

Due to lack of time, the integration between the lithogeochemical and PIMA analysis was not addressed in this study. This should be compared in order to detect any correlation patterns between the two. Any trends found could help define the type of interstitial clay within the drill holes through lithogeochemical analysis.

Deposit Model

The Maybelle River uraniferous zone has a high U + Ni + As association that is typical of polymetallic mineralization occurring in proximity to the sub-Athabasca unconformity and similar to that in some other uranium deposits in the basin. Examples include Key Lake, Cigar Lake, Collins Bay 'A', Collins Bay 'B', McClean, Midwest, Sue and Cluff Lake 'D' deposits (Ruzicka, 1997). Distribution of the elemental assemblages at the Maybelle River zone in Alberta is structurally controlled by both the sub-Athabasca unconformity and the underlying faulted zone in basement graphitic mylonitic rocks. In addition to uranium, nickel and arsenic, some other positively correlated elements exist, including B, P, Mo and Co. This anomalous elemental assemblage in Alberta resembles, to a certain degree, a similar pattern to that found in some economically important uranium deposits in Saskatchewan. In short, the tectonic and lithostratigraphic setting, and elemental associations in the Maybelle River uraniferous zone are metallogenically similar with the deposit models for the Saskatchewan unconformity-type uranium deposits.

A deposit model for the Maybelle River area has been constructed using the lithostratigraphic, alteration and lithogeochemical features found in core and described above (Fig. 3-16). This model for Maybelle River shows the following: (a) there is a zone of faulted and graphitic mylonite in the underlying basement; (b) there is or may be a topographic low in the Athabasca Group-basement unconformity overlying the faulted mylonite; (c) there is a zone of saprolitic and/or diagenetic regolith along the basement Athabasca Group unconformity. However, above the mylonite and below the overlying uraniferous zone, there is a zone of intense chloritization that is believed related to the uranium mineralization process; (d) there is a zone of clay enrichment in both the sandstone matrix and along faults and fractures above the uraniferous zone in FP; (e) there is a zone of highly fractured sandstone coincident with and overlying the uraniferous zone within FP; (f) there is a zone of silica 'enrichment' above the FP/MF contact, which includes both drusy quartz and silicified sandstone; and finally (g) in the overlying LzL and surficial sediments, there is little geochemical or alteration mineral anomalies, hence the Maybelle zone is essentially 'blind'.

Conclusions

It is postulated that the deposition of uranium was controlled by: (a) the unconformity between basement and FP, which is supported by the localization of the highest concentrations of uranium and several associated elements at the base of the Fair Point Formation in holes MR-34 and MR-39; and (b) perhaps more importantly by the underlying north-northwestern trending regional fault and coincident graphitic metapelitic layers in the basement. That is, this faulted graphitic zone in basement served as both a major structural control and as well acted as a 'reducdant' to promote uranium deposition from the more oxidizing uranium- and metal-bearing mineralizing fluids. As a result, uranium minerals, such as massive pitchblende, crystalline uraninite and coffinite, as well as nickel arsenide and other minerals were deposited within the overlying Fair Point Formation. The uraniferous zone is surrounded by an alteration zone in the sedimentary rocks that consists of clay minerals, highly fractured zones, silicified zones

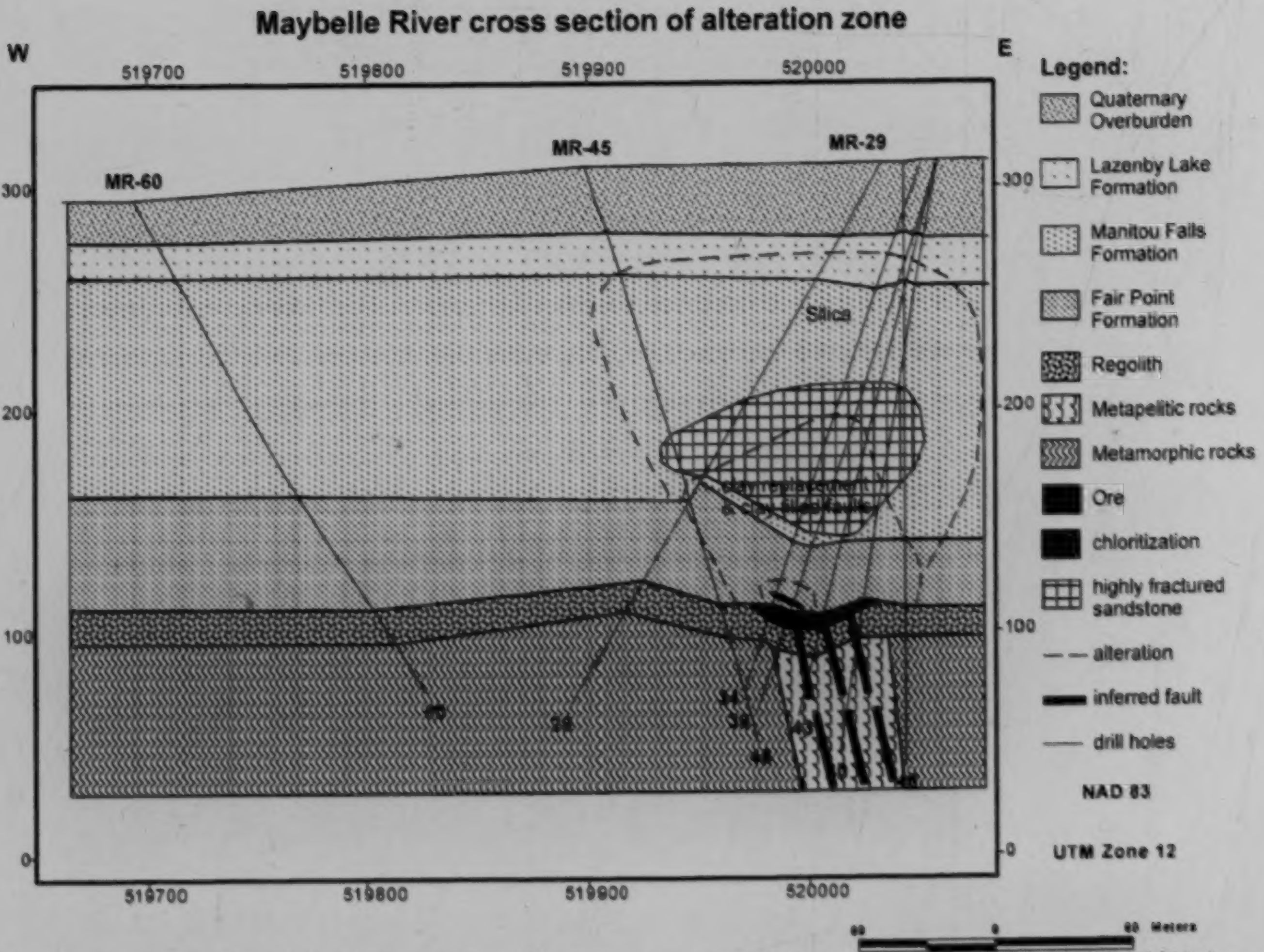

Maybelle River cross section of alteration zone
W
E
519700
519800
519900
520000
MR-60
MR-45
MR-29
Silica
300
200
100
0
330
200
100
0
60
28
34
38
48
43
Legend:
Quaternary Overburden
Lazenby Lake Formation
Manitou Falls Formation
Fair Point Formation
Regolith
Metapelitic rocks
Metamorphic rocks
Ore
chloritization
highly fractured sandstone
alteration
inferred fault
drill holes
NAD 83
UTM Zone 12
0
Meters

Fig. 3-16. Deposit model for Maybelle River area unconformity-type uranium deposit. A vertical cross section containing drill holes surrounding and contain the mineralized section. MR-29, -43, -60 are offsection to the N and MR-45 to the S which accounts for the slightly offset Formation boundaries between holes.

and local enhancement of both iron oxides. As well, alteration and anomalies in the basement rocks comprise chloritization directly below the deposit and destruction of graphite within the mylonitic rocks within the fault zone. In general, this model for the deposition of the Maybelle River uraniferous zone is compatible with the model for unconformity uranium deposits elsewhere in the eastern parts of the Athabasca Basin, with the only major difference being that the host rock is the Fair Point Formation as opposed to the more typical Manitou Falls Formation.

As a result of the similar metallogenic and alteration features between the Maybelle River uraniferous zone with important uranium deposits in the eastern part of the Athabasca Basin, this suggests there is a high possibility for discovery of important unconformity-type uranium deposits in the Alberta portion of the Athabasca Basin. In general, other than some recent drilling, reconnaissance to detailed exploration for uranium within the Alberta portion of the Athabasca Basin was largely done in the 1970s and 1980s. During the 1990s and into the 21st century there has been both a significant increase in knowledge about unconformity-type uranium deposits, and in various geophysical and geochemical methods to explore for such deposits. Finally, the depth the basement-Athabasca Group unconformity is at depths of less than about 300 m for much of the southwestern portion of the Athabasca Basin within Alberta. Therefore, as a result of this increased knowledge, potential new exploration methodologies and relatively shallow unconformity which favors open pitting, the potential for discovery of an important uranium deposit in Alberta, either at or near the known Maybelle River uraniferous zone or elsewhere, must be viewed as good.

Future exploration targets within Alberta should include terrains with basement rocks that contain graphitic units that can be detected by electromagnetic geophysical methods due to the zones high conductivity. Faults and fracture zones, which also may be identified by geophysical surveys, are also favorable targets. Detailed gravity surveys may detect low density zones of alteration associated with uraniferous zones. Geochemical anomalies of uranium, and selected associated elements such as arsenic, nickel, boron, phosphorus, molybdenum and cobalt, may be present and because they are more widely dispersed and hence larger targets than an economic uranium deposit, may be detectable by selective geochemical surveys and lithogeochemical sampling of drill core. Finally, during the geological logging of drill core some important features to look for include: (a) intersecting faults and fracture zones in either sandstone or basement at or near the unconformity; (b) hematite alteration around the deposit; (c) some other alteration or hydrothermal effects associated with the mineralizing process, such as bleaching of the core, increases or decreases in clay content and clay type, chloritization, etc.; (d) the presence of heavily fractured zones and collapse structures due to desilisification; (e) silicification aureoles and euhedral quartz filled vugs in the sandstone cover rocks; (f) anomalous amounts of chloritization in the basement rocks; and (g) depletion of graphite in pelitic layers in the basement.

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CHAPTER 4

General Discussion and Conclusions

A detailed study of 16 drill cores surrounding the uranium zone in the Maybelle River area, in the southwestern part of the Proterozoic Athabasca Basin in Alberta, was undertaken to better define Athabasca Group sedimentology, stratigraphy and the alteration surrounding the deposit. Awareness of the mineralization in the Maybelle area has led to renewed efforts to understand the stratigraphy and sedimentology of the western Athabasca Basin in Alberta.

A major difference between the Maybelle River area and other uranium deposits of the Athabasca Basin is the regional restriction of the Fair Point Formation beneath the Manitou Falls Formation in the western Athabasca Basin (Ramaekers, 1990), and the implications for uranium mineralization in this unique stratigraphic situation. In the central and eastern Athabasca Basin, world class uranium deposits are located at or near the unconformity between permeable units of the basal Manitou Falls Formation of the Athabasca Group and the underlying Paleoproterozoic basement gneisses and schists. In contrast, the Maybelle River trend is centred on a high-grade intersection in diamond drill hole MR-39 which averages 21% U_3O_8 over 5 m at the base of the Fair Point Formation just above the unconformity with underlying metamorphosed basement sedimentary and igneous rocks.

A detailed study of 16 drill cores within the Maybelle River area was the basis for reconsidering the lithostratigraphy and sequence stratigraphy of the Athabasca Group in this area. Lithostratigraphy in the Maybelle River area comprises parts of the Fair Point, Manitou Falls and Lazenby Lake formations.

The Fair Point Formation can be clearly distinguished from the overlying Manitou Falls Formation on the basis of primary sedimentary structures, such as massive bedding (Sm), coarser mean grains size and maximum transported grain size, and high interstitial clay abundance. Only one member, FPu, is recognized in the Maybelle River area. It rests unconformably on basement rocks and consists of massive to crudely cross-bedded, coarse grained sandstones. Deposition of this unit on prograding alluvial plains was from hyperconcentrated flows, interpreted from the lack of definable bedding and fine-grained beds as well as the consistent sand texture.

Only two members of Manitou Falls Formation are recognized in the study area. MFc, the lowest member, consists of thin, moderately sorted, cross-bedded, medium- to coarse-grained sandstones with granule to pebble sized clasts. MFd conformably overlies MFc and consists of thick, well-sorted, ripple laminated to cross-bedded, medium grained sandstones with common but <1% clay intraclasts, and an increase in low-angle cross bed towards the top. Based on consistent medium grain size and the predominance of ripple and dune structures, it is believed that deposition of these members occurred in relatively low velocity, perennial, braided river systems. The local extent and relatively thin nature of MFc reflect possible infilling of eroded paleovalleys that developed during the time represented by the Fair Point-Manitou Falls unconformity. The upward increase in low-angle cross beds in MFd suggests increased flashy discharge toward the Lazenby Lake Formation contact.

Only the lower part of the Lazenby Lake Formation is preserved in the study area. It consists of well sorted, massive to ripple laminated pebble bearing sandstones with overturned and convoluted bedding. Deposition of this member was similar to the Manitou Falls Formation, as it exhibits a similar, ripple laminated to cross bedded sedimentary style. The presence of low angle cross-beds at the base of the LzL represents a higher flow regime than the lower MFd. The massive beds may represent temporary pooling on the braid plain relating to channel avulsion. The overturned and convoluted bedding may be a result of frictional drag in a high-energy flow regime.

Three sequences are distinguished in the Maybelle River study area: the Fair Point, Manitou Falls and the base of the Lazenby Lake-Wolverine Point. Major sequence boundaries (unconformities) are indicated by changes in maximum transported grain size (MTG), primary sedimentary structures, and in places, sharp lithological breaks.

The Fair Point sequence in the study area is represented by the upper Fair Point Formation member (FPu). The unconformity separating the Fair Point and the overlying Manitou Falls Formation represents a sequence boundary that separates the Fair Point sequence from the Manitou Falls sequence. A change in hydraulic fluvial characteristics from the Fair Point Formation to the Manitou Falls Formation supports a substantial period of depositional hiatus. This is the most convincing sequence boundary because sharp unconformable contacts occur in most drill holes, floating undeformed Fair Point clasts sit above the contact in the Manitou Falls sediments, and the preservation of soil forming processes (oncolite bed) suggests a hiatus in sedimentation.

The overlying Manitou Falls sequence consists of the two Manitou Falls Formation members: MFc and MFd. The unconformity separating the Manitou Falls and the overlying Lazenby Lake Formation represents a sequence boundary that separates the Manitou Falls sequence from the Lazenby Lake-Wolverine Point sequence. This sequence boundary is gradational and is marked by the appearance of pebbles and pebble beds, a loss of clay intraclasts, and the appearance of overturned and convoluted bedding. The overlying Lazenby Lake-Wolverine Point sequence is represented in the study area only by the lower part of the Lazenby Lake Formation (LzL), which is unconformably overlain by Quaternary deposits.

This detailed study, surrounding the uranium zone in the Maybelle River area, has better defined its structural setting and surrounding alteration. The high grade uraninite intersections are located at the base of the Fair Point Formation just above the unconformity where it overlies a graphitic mylonitic fault zone. Host rock alteration consists of massive clay replacement, quartz dissolution and sandstone collapse, drusy quartz and pyrite lined fractures, silicification aureoles in the sandstone cover rocks, chlorite overprinting, and bleaching of core in the holes surrounding the uranium zone. The polymetallic geochemical signature in rocks surrounding the high-grade intersections includes uranium, arsenic, nickel, boron, phosphorus, molybdenum and cobalt. This empirical association is very similar to those of Saskatchewan deposits. From this it can be inferred that the same processes operated, and that Alberta has the same exploration potential as elsewhere in the Athabasca Basin.

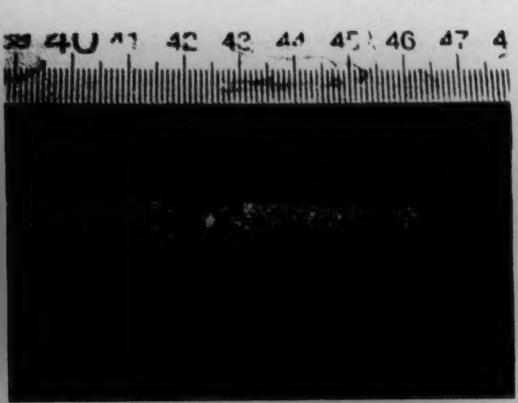
Clay mineral alteration of the Fair Point Formation at Maybelle River differs from the typical replacement of regional interstitial kaolinite by illite that accompanies uranium deposits hosted by the Manitou Falls sandstone in Saskatchewan. PIMA studies at Maybelle River suggest the conversion of interstitial clay from dickite to illite directly surrounding the mineralized zone in the Fair Point Formation. Replacement by chlorite is restricted to the Fair Point Formation directly surrounding the mineralized section in drill hole MR-39. Illite is the dominant interstitial clay within the Manitou Falls and Lazenby Lake formations in the entire Maybelle River study area. This could be the regional background interstitial clay or it could be that the illite alteration halo around the prospect is very large. Further PIMA studies on surrounding areas outside the alteration halo may help resolve this question.

In addition to identifying metallogenic characteristics of the deposit, lithogeochemistry can help distinguish individual formations within the Maybelle River area. Fifteen elements show higher levels within the Fair Point Formation than the Manitou Falls or Lazenby Lake formations, and one shows the opposite relationship. This can be used in future studies to help map lithostratigraphic breaks and background levels of the individual formations.

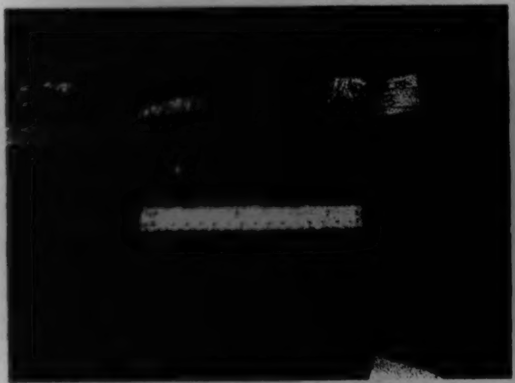
Renewed interest in the Athabasca Basin, due to the creation of the EXTECH IV project, has led to a better understanding of Athabasca Group sedimentology, stratigraphy and alteration surrounding the Maybelle River uranium zone. The stratigraphy of the Maybelle River area is herein refined and linked to the regional stratigraphy of the Athabasca Basin, based on primary sedimentary textures, structures and framework grain composition. The ore deposit model for the Maybelle River prospect, characterized by host rock clay alteration and lithogeochemistry, together with the underlying graphitic schist and evidence of a major fault zone, is very similar to those of world class uranium deposits in the Saskatchewan part of the basin. These similarities can serve as guides for future exploration within Alberta, under the Athabasca Basin.

APPENDIX 1 – Drill core pictures

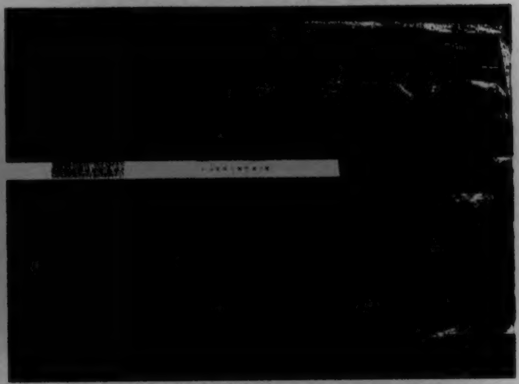
MR-34 at 50 m: LzL



MR-34 at 208 m: FP clasts in MF



MR-34: mineralized section



MR-34: chloritized red-zone

MR-35 at 46 m: LzL ripple laminations

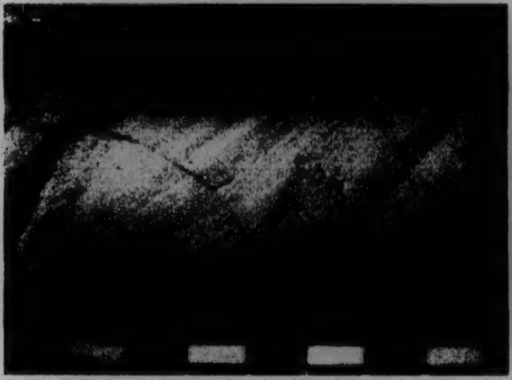
MR-35 at 48 m: LzL fine beds

MR-35 at 55 m: LzL overturned bedding

MR-35 at 59 m: LzL pebble lag

MR-35 at 70 m: intraclast in MF

MR-35 at 79 m: pyrite lined fracture in MF

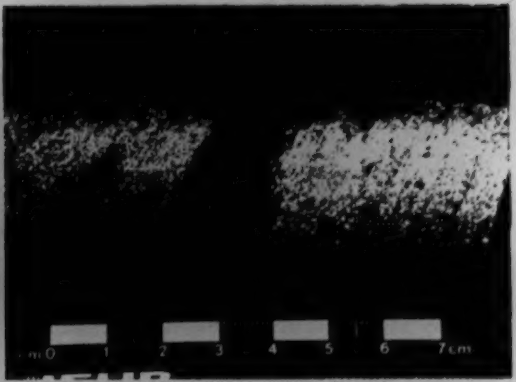

MR-35 at 113 m: ripple laminated MF

MR-35 at 184 m: clay bed in MF

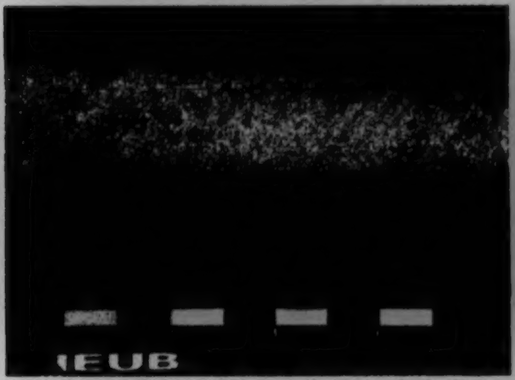
MR-35 at 190m: coarse beds in MF

MR-35 at 192m: FP clast in MF

MR-35 at 206 m: silt bed in FP

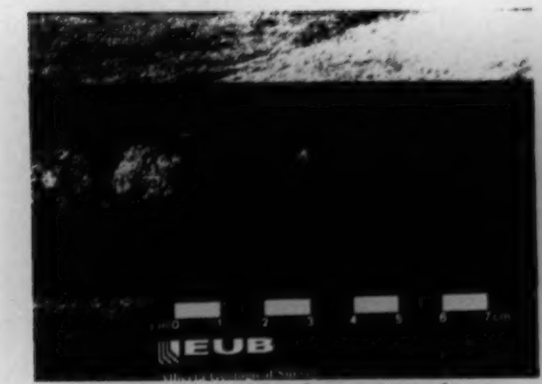


MR-35 at 200 m: intraclast in FP



MR-35 at 208 m: low angle x-beds in FP

MR-35 at 214 m: Pebbly sandstone in FP



MR-45 at 182 m: Matrix supported conglomerate in FP

MR-39 at 144-152 m: brecciated and oil filled fract. in MF

MR-39 at 183 m: clay replacement in MF

MR-39 at 187 m: large pebble basement clast in FP

MR-39 at 195 m: clay replacement in FP

MR-39 at 196-208 m: alteration in FP and basement around U-zone

MR-40 at 229 m: graphitic mylonite

MR-41 at 168 m: oncolite bed at FP-MF contact

MR-41 at 172-180 m: FP beds

MR-47 at 194-196 m: clay replacement in FP

MR-47 at 196 m: clay filled fault in FP

MR-50 at 99 m: drusy quartz lined fracture in MF

APPENDIX 2 – Drill core data

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Darkness	Colour	Pattern	IC Friab.	IC Slid.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSB	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydrocarbon Type	Hydrocarbon Distrib.
MR-29	37	38	70	t	p	C	Lr	c	w	f	m	c	4	0.5	0	0	0	n			n	4	n		Sr				p	f
MR-29	38	39	80	t	p	P	Lr	c	w	f	m	c	2	0	0	0	0	n			n	4	n		Sr				p	f
MR-29	39	40	25	t	p	P	Lr	c	w	f	m	c	2	0	0	0	0	n			n	4	n		Sr				p	f
MR-29	40	41	25	t	p	P	Lr	c	w	f	m	c	1	0	0	0	0	n			n	1	n		Sm;Sr				p	f
MR-29	41	42	94	t	p	P	Lr	c	w	f	m	vc	4	1	0	0	0	n			n	5	n		Sr				p;p	f;i
MR-29	42	43	96	t	p	P	Lr	c	w	f	m	vc	6	0.5	0	0	0	n			n	10	n		Sm;Sr				p	f
MR-29	43	44	95	t	p	P;Y	Lg	c	m	f	m	c	1	0	0	0	0	n		Bk	d	8	n		Sr;S?				p	f
MR-29	44	45	96	tm	p	P;Y	LrSd	c	w	f	m	c	3	0.5	0	0	0	n		Bk	d	8	c		Sl;Sr				p	f
MR-29	45	46	92	tm	p	P;Y	Lg	c	w	s	m	c	3	0.5	8	0	0	n		Bk	d	7	n		Sr		Mh		p	f
MR-29	46	47	93	tm	p	P	Lr,Sd	c	w	f	m	ps	7	1	0	0	0	n			n	5	n		Sr				p	f
MR-29	47	48	94	m	p	P	Lr,Sr	c	m	f	m	c	1	0	0	0	0	n			n	6	r		Sm;Sr				p	f
MR-29	48	49	96	mt	p	P	Lr,Sr	c	m	f	m	c	2	0	0	0	0	n			n	16	n		Sr				p	f
MR-29	49	50	95	tm	p	P	Lr,Sr	c	m	f	m	c	2	0	0	0	0	n			n	7	r		Sm				p	f
MR-29	50	51	97	t	p	P	Lr	c	m	f	m	vc	4	1	0	0	0	n			n	8	n		Sr				p;p	f;i
MR-29	51	52	95	t	p	P	LrSr	c	m	f	m	c	7	1	0	0	0	n			n	15	n		Sr				p	f
MR-29	52	53	92	tm	p	C	U	e	m	f	m	vc	4	1	0	0	0	n			n	20	n		S?				p	f
MR-29	53	54	92	tm	p	C	U	c	m	f	m	c	3	0.5	0	0	0	n			n	25	n		S?				p	f
MR-29	54	55	94	t	p	P	Lr	c	m	f	m	vc	7	1	0	0	0	n			n	20	n		S?				p	f
MR-29	55	56	93	t	p	P	Lr	c	m	f	m	c	3	0.5	0	0	0	n			n	8	n		Sm				p	f
MR-29	56	57	98	mt	p	P	Lr	e	w	s	vf	ps	10	1	0	0	0	n			n	3	n	G1	Sr	Fl			p	f
MR-29	57	58	93	m	p	P	Lr	c	w	f	c	ps	10	4	0	0	0	n			n	3	c		Sr			Pr	p;p	i;f
MR-29	58	59	98	m	p	P	Lr	c	m	m	c	pm	30	4	0	0	2	w	1		n	3	n	G1	Sr			Pr	p;p	i;f
MR-29	59	60	98	tm	p	P	B	c	m	f	m	c	5	0.5	0	0	0	n			n	12	n		Sr				n	n
MR-29	60	61	97	tm	p	C	U	c	m	f	m	c	5	0.5	0	0	0	n		Bn	d	0	n		Sr	Fr			n	n
MR-29	61	62	95	t	p	C	U	c	m	f	m	c	1	0	0	0	0	n			n	1	n		Sr				n	n
MR-29	62	63	98	tm	p	C	U	c	m	f	f	c	1	0	0	0	0	p;g	0.5		n	3	n		Sr	Fr			p	f
MR-29	63	64	95	t	p	C	Lr	c	m	f	f	c	1	0	0	0	0	g	0.5		n	5	n			Fr			p	f
MR-29	64	65	94	mt	p	P	U	c	m	f	f	c	1	0	0	0	0	g	0.5		n	3	n			Fr			p	f
MR-29	65	66	78	mt	p	C	Lr	c	m	f	f	m	1	0	0	0	0	g	0.5		n	3	n			Fr			n	n
MR-29	66	67	94	t	p	C	Lr	c	m	f	f	m	1	0	0	0	0	n		Bk	d	2	n		Sr	Fr			n	n
MR-29	67	68	98	t	p	P	B	c	m	f	m	m	1	0	0	0	0	p	0.5	Bk;Bn	d;l	4	n		Sr;Sl				p	f
MR-29	68	69	97	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	g	0.5	Bn	d	0	f		Sr	Fm			n	n
MR-29	69	70	94	mt	m	P	Lr	c	m	f	m	c	1	0	0	0	0	d;w;g	0.5	Bn	l	3	n		Sr				n	n
MR-29	70	71	97	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	g	0.5		n	1	n		Sm;Sr				n	n
MR-29	71	72	97	tm	p	C	Lr	c	m	f	m	m	1	0	0	0	0	g	0.5		n	4	n		Sr;Sm				p	f
MR-29	72	73	98	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	p	0.5		n	0	n		Sr				n	n
MR-29	73	74	95	t	p	C	LrSr	c	m	f	m	c	1	0	0	0	0	p	0.5		n	2	n		Sr				n	n
MR-29	74	75	98	t	p	C	LrSr	c	m	f	m	m	1	0	0	0	0	p	0.5	Bn	l	2	n		Sr				n	n
MR-29	75	76	98	tm	p	P	Lr	c	m	f	m	m	1	0	0	0	0	g	0.5		n	4	n		Sm;Sr				n	n
MR-29	76	77	99	t	p	P	B	c	m	f	m	c	1	0	0	0	0	n			n	0	n		Sr				n	n
MR-29	77	78	98	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	g	0.5	Bn	d	3	n		Sr;Sm				n	n
MR-29	78	79	97	tm	p	P	Lr	c	m	f	m	m	1	0	0	0	0	p;g	0.5		n	0	n		Sr;Sm				n	n
MR-29	79	80	97	tm	p	P	Lr	c	m	f	m	c	1	0	0	0	0	d;g	0.5	Bn	l	1	n		Sr				n	n
MR-29	80	81	98	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	d;g	0.5	Bn	l	1	n		Sr				n	n
MR-29	81	82	94	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	p	0.5		n	2	n		Sr				n	n
MR-29	82	83	97	tm	p	C	U	c	m	f	m	c	1	0	0	0	0	n		Bn	d	0	c		Sr	Fm			n	
MR-29	83	84	94	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	p	0.5		n	1	n		Sr				n	n
MR-29	84	85	95	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	p	0.5	Bk	d	1	n		Sr				n	n
MR-29	85	86	94	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	2	n		Sr	Fm			n	n
MR-29	86	87	95	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	d	0.5		n	0	n		Sr				n	n
MR-29	87	88	95	t	p	C	LrSr	c	m	f	m	c	1	0	0	0	0	w;p	0.5	Bk	d	1	n		Sr	Fm			n	n
MR-29	88	89	98	t	p	C	LrSr	c	m	f	m	c	1	0	0	0	0	p;g	0.5		n	3	n		Sr	Fm			n	n
MR-29	89	90	94	t	p	C	LrSr	c	m	f	m	c	1	0	0	0	0	w;p	0.5	Bn	d	1	n		Sr	Fm			n	n
MR-29	90	91	97	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	1	n		Sr	Fm			n	n
MR-29	91	92	98	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	g	0.5		n	2	n		Sr				n	n
MR-29	92	93	98	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	3	n		Sr				n	n
MR-29	93	94	95	t	p	C	Lr	c	m	f	f	c	1	0	0	0	0	p	0.5		n	2	n		Sr	Fm			n	n
MR-29	94	95	80	t	p	C	Lr	c	m	f	m	m	1	0	0	0	0	n			n	2	n		Sr	Fp			n	n
MR-29	95	96	97	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	p;g;d	0.5		n	3	n		Sr				n	n
MR-29	96	97	97	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	1	n		Sr				n	n
MR-29	97	98	96	t	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	4	n		Sr				n	n
MR-29	98	99	98	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n		Bk	d	3	n		Sr				n	n
MR-29	99	100	99	t	p	P	LrSr	c	m	f	m	m	1	0	0	0	0	n			n	6	n		Sr	Fm			n	n
MR-29	100	101	98	t	p	C	Lr	c	m	f	f	m	1	0	0	0	0	n			n	1	n			Fr,Fm			n	n

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tac. Struct. Type	Tac. Struct. Angle	Tac. Struct. FF Cement	Tac. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-29	37	38	1		0		0				first 20cm is grinded/rounded core
MR-29	38	39	1	fr	0	l;y	1				from 38m to the beginning of 41m, there is only 1.5m of core
MR-29	39	40	2	bx	0	o	2				breccia filled fracture, filled with pyrobitumen
MR-29	40	41	1								
MR-29	41	42	3	fr;fr	0;0	o;qp	1;0				
MR-29	42	43	1	fr;fr	0;0	o;qp	1;0				
MR-29	43	44	1	fr	0	s	0				
MR-29	44	45	1	fr	0	py	0				
MR-29	45	46	1	fr	0	py	0				
MR-29	46	47	1								1st pebble bed
MR-29	47	48	1								some core are grinded
MR-29	48	49	1	fr	0	s	0				
MR-29	49	50									
MR-29	50	51	1								
MR-29	51	52	1	fr	0	qp	0				some fractures have been silicified?/healed-they disrupt bedding
MR-29	52	53	1	fl	0	qp	0				highly faulted (slickenlines?)/fractured, have been healed (silicified?)-destroys bed forms
MR-29	53	54	1	fr	0	qp	0				highly fractured-have been healed (silicified)-disrupts bedding. Very broken up.
MR-29	54	55	1	fl;fr	0;0	o;qp	0;0				highly fractured/faulted (slickenlines), have been healed/silicified-disrupts bedding
MR-29	55	56	1								
MR-29	56	57	1	fl	0	y	0				thin pebble bed
MR-29	57	58	2	fr	0	qd	0				sandy gravel (2cm)
MR-29	58	59	5	fr	15	qd	0	fr	y	6	Lt/MF contact at 58.63m. Base of Lt. large pebble bed sitting on fine grained ss. A few pebble beds at base, largest at base
MR-29	59	60	0	fr	0	qp	0				highly fractured and silicified/healed
MR-29	60	61	0								
MR-29	61	62	0								
MR-29	62	63	1	fd	25		0				
MR-29	63	64	1	fr	0	qd	0				
MR-29	64	65	1	fr	0	y	0				
MR-29	65	66	0	fl	0	y	0				
MR-29	66	67	0								
MR-29	67	68	1	fr	0	s	0				
MR-29	68	69	0								
MR-29	69	70	0								Start to see bleached bedding planes; notice in liesegang banding
MR-29	70	71	0								
MR-29	71	72	1								
MR-29	72	73	0								
MR-29	73	74	0	fd	20	qd	0				
MR-29	74	75	0	fr;fr	0;0	s;qd	0;0				
MR-29	75	76	0	fr	0	qd	0				
MR-29	76	77	0								
MR-29	77	78	0	fr	0	qd	0				
MR-29	78	79	0								
MR-29	79	80	0	fr	0	s	0				
MR-29	80	81	0								
MR-29	81	82	0								
MR-29	82	83	0								
MR-29	83	84	0								
MR-29	84	85	0								
MR-29	85	86	0								start to see clay rich bed layers
MR-29	86	87	0								
MR-29	87	88	0								contains a thin bed of vf gr. ss
MR-29	88	89	0								
MR-29	89	90	0								
MR-29	90	91	0	fr	0	py	0				
MR-29	91	92	0	fr	20	qp	0				
MR-29	92	93	0	fr	20	qd	0				
MR-29	93	94	0								
MR-29	94	95	0								
MR-29	95	96	0	fd	20	qd	0				Contain a few thick quartz lined faults/frac
MR-29	96	97	0								
MR-29	97	98	0	fd;fr	20;20	qd;qd	0;0				start to see more open fractures filled with druzy quartz and pyrite; some are sealed by quartz
MR-29	98	99	0	fr	20;0	qd;py	0;0				
MR-29	99	100	0	fr	20;0	qd;py	0;0				
MR-29	100	101	0	fr	20	qd	0				

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intract. Type	Intract. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SBS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-29	101	102	97	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	4	n		Sr;Sm				n	n
MR-29	102	103	98	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	d	0.5		n	0	n		Sr;Sm				n	n
MR-29	103	104	97	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	p;g	0.5		n	3	n		Sr				n	n
MR-29	104	105	96	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	p	0.5	Bn	d	3	n		Sr				n	n
MR-29	105	106	98	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n		Bn	d	1	n		Sr;Sm				n	n
MR-29	106	107	96	t	p	C	Lr;Sr	c	m	f	m	c	1	0	0	0	0	n		Bn	d	1	n		Sr				n	n
MR-29	107	108	97	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	p	0.5	Bn;Bn	d;l	2	n		Sr				n	n
MR-29	108	109	97	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	p;d	0.5	Bn	d	0	n		Sr				n	n
MR-29	109	110	98	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	p	0.5	Bn	d	2	n		Sr;Sm				n	n
MR-29	110	111	97	tm	p	C	Lr	c	m	f	f	c	1	0	0	0	0	w;p	0.5	Bn	d	2	n		Sr				n	n
MR-29	111	112	98	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n		Bk	d	2	n		Sr;Sm				n	n
MR-29	112	113	97	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	g;d	0.5		n	2	n		Sr;Sm				p	f
MR-29	113	114	98	tm	p	C	Lr;Sr	c	m	f	f	c	1	0	0	0	0	w;g	0.5		n	0	n		Sr				p	f
MR-29	114	115	98	tm	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n		Bn	d	1	n		Sr				n	n
MR-29	115	116	97	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	p	0.5		n	3	n		Sr				n	n
MR-29	116	117	98	tm	p	P	U	c	m	f	m	c	1	0	0	0	0	p;w;d	0.5		n	2	n		Sr;Sm				n	n
MR-29	117	118	96	tm	p	P	U	c	m	f	m	c	1	0	0	0	0	n			n	2	n		Sr	Fm			p	f
MR-29	118	119	80	tm	p	C	U	c	m	f	m	c	1	0	0	0	0	n			n	4	n		Sr				p	f
MR-29	119	120	97	t	p	P	U	c	m	f	m	c	1	0	0	0	0	p	0.5		n	9	n		Sr;Sm	Fr			p	f
MR-29	120	121	99	tm	p	C	Lr	c	m	f	m	m	1	0	0	0	0	n			n	5	n		Sm;Sr	Fm			p	f
MR-29	121	122	97	tm	p	P	U	c	m	f	m	m	1	0	0	0	0	n			n	5	n		Sr	Fm			p	f
MR-29	122	123	97	tm	p	P	U	c	m	f	m	m	1	0	0	0	0	n			n	12	n		Sm;Sr				p	f
MR-29	123	124	96	mt	p	P	Lr	c	m	f	m	c	1	0	0	0	0	p	0.5		n	20	n		Sm;Sr				p	f
MR-29	124	125	97	tm	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	15	n		Sr;Sm				p	f
MR-29	125	126	97	tm	p	C	Lr;Sr	c	m	f	m	c	1	0	0	0	0	g	0.5		n	10	n		Sr;Sm				p	f
MR-29	126	127	97	t	p	C	Lr;Sr	c	m	f	m	c	1	0	0	0	0	n			n	14	n		Sr;Sm				p	f
MR-29	127	128	97	t	p	C	Lr	c	m	f	m	m	1	0	0	0	0	p	0.5		n	7	n		Sm;Sr				p	f
MR-29	128	129	98	tm	p	P	Lr	c	m	f	m	c	1	0	0	0	0	w;d	0.5		n	7	n		Sr;Sm				p	f
MR-29	129	130	96	t	p	P	Lr	c	m	f	m	c	1	0	0	0	0	d	0.5		n	8	n		Sr;Sm				p	f
MR-29	130	131	97	tm	p	C	Lr	c	m	m	m	d	1	0	0	0	0	p	0.5		n	10	n		Sr				p	f
MR-29	131	132	97	mt	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	6	n		Sm;Sr				n	n
MR-29	132	133	98	t	p	P	Lr	c	m	f	m	m	1	0	0	0	0	d	0.5		n	1	n		Sr				p	f
MR-29	133	134	96	tm	p	P	Lr	c	m	f	m	m	1	0	0	0	0	p	0.5		n	7	n		Sr				p	f
MR-29	134	135	97	t	p	P	Lr	c	m	f	m	c	1	0	0	0	0	g	0.5			7	n		Sr				p	f
MR-29	135	136	88	tm	p	U	Lr	c	m	f	m	c	1	0	0	0	0	n			n	5	n		Sr				p	f
MR-29	136	137	97	t	p	P	Lr	c	m	f	m	m	1	0	0	0	0	d;g	0.5		n	9	n		Sr	Fm			p	f
MR-29	137	138	96	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	8	n		Sr				p	f
MR-29	138	139	96	t	p	C	Lr;Sr	c	m	f	m	m	1	0	0	0	0	n			n	7	n		Sr				p	f
MR-29	139	140	70	tm	p	P	Lr	c	m	f	m	c	1	0	0	0	0	g	0.5		n	3	n		Sr				p	f
MR-29	140	141	96	tm	p	P	Lr	c	m	f	m	m	1	0	0	0	0	n			n	10	r		Sm;Sr				p	f
MR-29	141	142	98	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	d;p	0.5		n	7	n		Sr				p	f
MR-29	142	143	91	tm	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	3	n		Sr				p	f
MR-29	143	144	97	tm	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	12	n		Sr				p	f
MR-29	144	145	96	t	p	C	Lr	c	m	f	m	m	1	0	0	0	0	n			n	10	n		Sr				p	f
MR-29	145	146	97	mt	p	C	U	c	m	f	m	c	1	0	0	0	0	n			n	20	n		Sr				p	f
MR-29	146	147	96	m	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	11	n		Sr				p	f
MR-29	147	148	97	mt	p	P	Lr	c	m	f	m	vc	1	0	0	0	0	n			n	10	n		Sr				p	f
MR-29	148	149	92	tm	p	P	Lr	c	m	f	m	vc	3	1	0	0	0	n	1		n	8	n		Sr				p	f
MR-29	149	150	90	tm	p	C	Lr	c	m	f	m	vc	3	1	0	0	0	n			n	13	n		Sr;Sm				p	f
MR-29	150	151	96	tm	p	C	Lr	c	m	f	m	vc	3	1	0	0	0	n			n	8	c		Sr				p	f
MR-29	151	152	94	mt	p	C	Lr	c	m	f	m	vc	4	0.5	0	0	0	p	0.5		n	13	r;c		Sr				p	f
MR-29	152	153	97	mt	p	C	Lr	c	m	f	m	g	4	1	0	0	0	n		Bn	d	9	sl		Sr				p	f
MR-29	153	154	98	mt	p	C	Lr	c	m	f	c	vc	3	1	0	0	0	w	1	Bn	l	2	r		Sr				p	f
MR-29	154	155	95	tm	p	C	Lr	c	m	f	m	vc	2	0	0	0	0	g	0.5		n	3	n		Sr				p;p	f;i
MR-29	155	156	97	tm	p	C	Lr	c	m	f	m	vc	2	0	0	0	0	n		Bn	d	3	n		Sr				p	f
MR-29	156	157	97	tm	p	C	Lr	c	m	f	c	vc	3	1	0	0	0	n		Bn	d	6	c		Sr				p	f
MR-29	157	158	97	tm	p	C	Lr	c	m	f	m	vc	2	2	0	0	0	p	0.5	Bn;Bn	d;l	7	r		Sr;Sm				p	f
MR-29	158	159	97	tm	p	C	Lr	c	m	f	m	vc	4	0	0	0	0	n			n	11	n		Sr;Sm				p	f
MR-29	159	159.76	98	tm	p	C	Lr	c	m	f	m	vc	5	1	0	0	0	n			n	2	f		Sm;Sr				p;p	f;i
MR-29	159.76	160	99	a	m	C;M	M	c	w	m	vc	ps	9	7	0	0	0	n			n	0	f					Pm	n	n
MR-29	160	161	95	a	m	C;M	M	c	w	c	vc	pm	15	10	0	0	3	n			n	0	n					Pm	n	n
MR-29	161	162	97	a	p	C	U	c	w	c	vc	g	6	2	0	0	0	n		Bn	d	1	n					Pm	n	n
MR-29	162	163	95	a	m	C;M	M	c	w	c	vc	ps	5	1	0	0	0	n			n	1	n					Pm	n	n
MR-29	163	164	95	a	p	C	U	c	w	m	vc	g	5	2	0	0	0	n		Bn	l	3	n					Pm	p	f

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-29	101	102	0	fr	20;0	qd;py	0;0				
MR-29	102	103	0								
MR-29	103	104	0	fd	10	y	0				
MR-29	104	105	0	fr	20;0	qd;py	0;0				Fractures were open, but are being healed by quart, on-efrac. completely silicified
MR-29	105	106	0	fr	20	y	0				
MR-29	106	107	0	fr	10	s	0				
MR-29	107	108	0	fr	0	y	0				
MR-29	108	109	0								Abundant clay along bedding
MR-29	109	110	0	fr	20	s	0				
MR-29	110	111	0								
MR-29	111	112	0								
MR-29	112	113	0								abundant clay along bedding-thn clay beds.
MR-29	113	114	0								
MR-29	114	115	0								
MR-29	115	116	0								
MR-29	116	117	0								
MR-29	117	118	1	fr	20	y	0				
MR-29	118	119	1								
MR-29	119	120	1	fr	25	qd	0				have 2 sets of fractures, perpendicular to eachother.
MR-29	120	121	1								
MR-29	121	122	1								
MR-29	122	123	1	fr	25	qd	0				Getting highly fractured, filled by pyrob. and open frac. filled by quartz. Start of more fractures and pyrob. permiation.
MR-29	123	124	1	bx	0	sc	0				Highly fractured, possible fault zone (breccia)?
MR-29	124	125	1								
MR-29	125	126	1								
MR-29	126	127	0								
MR-29	127	128	1								
MR-29	128	129	1								
MR-29	129	130	1								
MR-29	130	131	1								
MR-29	131	132	0	bx	0	sc	0				Breccia zone at top, completely healed by quartz.
MR-29	132	133	1								
MR-29	133	134	1	fr	25	y	0				
MR-29	134	135	1	fr	25	y	0				
MR-29	135	136	1	fr	20	qd	0				
MR-29	136	137	1	fr	20	su	0				
MR-29	137	138	1	br	20	sc	0				Fault zone with clay-filled/ slightly silicified breccia
MR-29	138	139	1	fd	20		0				
MR-29	139	140	1	fr	20	qd	0				factures are partly silicified and partly filled with pyrob
MR-29	140	141	1	br	20	sc	0				see breccia zone-silicified
MR-29	141	142	1	br	20	sc	0				breccia zone at top-silicified
MR-29	142	143	1								
MR-29	143	144	1	ft	15	y	10				contains a clay filled fault. Highly frac.-filled with pyrob.
MR-29	144	145	1	ft;ft	15;35	y;y	30;5				
MR-29	145	146	1	ft;fr	10;15	y;qd	6;0				highly frac.-filled with pyrob., contains clay-filled fault, cuts across frac.
MR-29	146	147	1	br	0	sc	0				two possible breccia zones, hard to tell
MR-29	147	148	1	br	0	sc	0				3 breccia zones-silicified
MR-29	148	149	1	fd	20	qp	4				
MR-29	149	150	2	ft	0	o	0				bottom half of core is broken up, pyrob. stained and clay filled-possible fault
MR-29	150	151	1								
MR-29	151	152	1	fr	10	qd	0				broken core, pyrob. filled and some clay filled
MR-29	152	153	1	fd;fr	10;15	y	0;5				possible faults running through
MR-29	153	154	1								
MR-29	154	155	1								
MR-29	155	156	1								
MR-29	156	157	1								
MR-29	157	158	1	ft	0	y	0				
MR-29	158	159	1								
MR-29	159	159.76	1								contact between MFc and FP at 159.76m, FP clasts are floating in MF
MR-29	159.76	160	0								Top of the FP. There is soft sed. deformation-flame/ball and pillow?
MR-29	160	161	0								
MR-29	161	162	0	fr	0		0				
MR-29	162	163	0	fr	20	qd	0				
MR-29	163	164	1								green at base, green clay-redish colour of pebbles

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-29	164	165	97	a	p	C;Gn	U	c	w	m	vc	ps	15	3	0	0	0	n			n	6	n					Pm	p	f
MR-29	165	166	97	a	p	C	U	c	w	m	vc	g	7	2	0	0	0	n			n	8	n					Pm	p	f
MR-29	166	167	65	a	p	C	U	c	w	c	c	g	7	2	0	0	0	n			n	8	n					Pm	p	f
MR-29	167	168	98	a	p	C	U	c	w	c	vc	g	8	3	0	0	0	n			n	0	n					Pm	p	f
MR-29	168	169	98	a	p	C	U	c	w	c	vc	pm	28	5	0	0	0	w	0.5		n	4	n					Pm	p	f
MR-29	169	170	98	a	p	C;M	M	c	w	c	c	g	3	1	0	0	0	n			n	0	n		Sm				n	n
MR-29	170	171	98	a	p	C	Sr	c	w	m	c	g	9	3	0	0	0	n			n	2	n		Sm			Pm	p	f
MR-29	171	172	98	a	m	C;Pu	M;Sr	c	w	c	vc	g	3	2	0	0	0	n			n	2	n					Pm	p	f
MR-29	172	173	98	a	m	C;Pu;Gn	B;M	c	w	m	vc	g	11	2	0	0	0	n			n	3	n					Pm	p	f
MR-29	173	174	98	a	m	P;Gn	B	c	w	m	c	g	4	2	0	0	0	n			n	4	n		Sm				n	n
MR-29	174	175	98	a	m	M;C	M;Lpu	c	w	c	vc	g	12	3	0	0	0	n			n	2	n					Pm	n	n
MR-29	175	176	98	a	d	M;Gn	B	c	w	m	c	g	3	1	0	0	0	n			n	0	n		Sm			Pm	n	n
MR-29	176	177	98	a	d	M;C	M	c	w	m	c	g	10	2	1	0	0	n			n	4	n		Sm				n	n
MR-29	177	178	98	a	d	M;C	B	c	w	m	c	g	20	4	0	0	0	n			n	1	n		Sm				n	n
MR-29	178	179	98	a	m	C;M	B	c	w	m	c	vc	6	2	0	0	0	n			n	0	n		Sm				n	n
MR-29	179	180	94	a	m	M;C	M	c	w	c	vc	g	15	2	0	0	0	n			n	0	n					Pm	n	n
MR-29	180	181	97	a	m	P;Pu	M	c	w	c	vc	ps	36	4	0	0	0	n			n	0	n					Px;Pm	n	n
MR-29	181	182	98	a	m	Pu;P	M	c	w	c	vc	pm	30	10	0	0	0	n		0	n	0	n	G1				Pm	n	n
MR-29	182	183	97	a	m	P;Pu	M	c	w	m	c	g	9	1	0	0	0	n			n	0	n		Sx			Pm	n	n
MR-29	183	184	97	a	m	P;Pu	M	c	w	c	vc	pm	30	12	0	0	0	n			n	2	n					Pm	p	f
MR-29	184	185	98	a	m	Pu;P	B	c	w	c	vc	pm	19	15	0	0	3	n			n	0	n	Gl				Pm;Px	n	n
MR-29	185	186	97	a	p	P;Pu	B	c	w	m	vc	ps	36	15	0	0	6	w	1		n	0	n	Gl				Pm	n	n
MR-29	186	187	98	a	m	Pu;P	B	c	w	c	vc	pl	27	26	0	0	0	d	0.5		n	0	n	Gl				Pm	n	n
MR-29	187	188	98	a	p	P;Pu	B	c	w	c	c	ps	14	14	0	0	4	n			n	0	n	Gl;G1	Sx			Pm	n	n
MR-29	188	189	98	a	m	Pu;P	M	c	w	c	c	ps	10	18	0	0	4	n			n	0	n	Gl	Sx			Pm	n	n
MR-29	189	190	98	a	m	Pu;P	M	c	w	m	c	ps	13	10	0	0	0	n			n	0	n	Gl				Pm	n	n
MR-29	190	191	97	a	m	Pu;P	B	c	w	c	vc	g	6	6	0	0	0	n			n	0	n	Gl				Pm	n	n
MR-29	191	192	98	a	m	Pu;P	M	c	w	m	vc	ps	15	20	0	0	7	n			n	0	n	Gl				Pm	n	n
MR-29	192	193	97	a	m	P;Pu	B	c	w	c	vc	g	20	12	0	0	5	n			n	0	n	Gl	Sx			Pm	n	n
MR-29	193	194	98	a	d	Pu;P	M	c	w	c	vc	pm	18	11	0	0	0	n			n	0	n	Gl				Pm	n	n
MR-29	194	195	98	a	m	Pu;P	M	c	w	c	c	ps	20	12	0	0	0	n			n	0	n	Gl				Pm	n	n
MR-29	195	196	98	a	d	Pu;P;Gn	M	c	w	c	vc	ps	35	10	0	0	0	n			n	3	n	Gl				Pm	p	f
MR-29	196	197	98	a	m	P;Gn;Pu	M	c	w	c	c	g	23	4	0	0	0	n			n	0	n		Sm				n	n
MR-29	197	198	99	a	d	M;P	M	c	w	c	c	g	22	4	0	0	0	n			n	1	n		Sx			Pm	p	f
MR-29	198	199	99	a	m	Pu;P	M	c	w	c	vc	g	16	4	0	0	0	n			n	0	r		Sx			Pm	n	n
MR-29	199	200	85	a	m	P;Pu	M	c	w	c	vc	g	18	4	0	0	0	n			n	2	n		Sm				p	f
MR-29	200	201	98	a	p	P;Gn	M	c	w	c	vc	g	14	5	0	0	0	n			n	5	n		Sm;Sx				p	f
MR-29	201	202	97	a	p	P;Gn	M	c	w	c	vc	ps	28	11	0	0	0	n			n	1	n		Sm				p	f
MR-29	202	203	95	a	m	P;Pu	B	c	w	c	vc	ps	10	5	0	0	0	n			n	1	n					Pm	p	f
MR-29	203	204	99	a	m	Pu;P	B	c	w	m	vc	ps	75	15	0	0	8	n			n	3	r		Sx			Pm	p	f
MR-29	204	205	99	a	m	P;Pu	B	c	w	c	vc	g	18	3	0	0	0	n			n	2	n		Sx			Pm	p	f
MR-29	205	206	95	a	p	P;Gn	M	c	w	c	vc	ps	12	8	0	0	0	n			n	1	n		Sx			Pm	p	f
MR-29	206	207	98	a	p	P;Pu;Gn	M	c	w	c	vc	pm	25	16	0	0	0	n			n	1	n	Gm				Pm	p	f
MR-29	207	208	98	a	p	P;Gn	M	c	w	c	g	pm	48	20	0	0	0	n			n	1	n	Gm;Gl				Pm	p	f
MR-29	208	208.9	98	a	p	P;Pu	M	c	w	c	vc	ps	100	14	0	0	8	n			n	0	n	Gm				Pm	n	n
MR-34	34	35	70	m	p	C	Sr	c	w	f	m	m	2	0	0	0	0	n;n		Bk	d	2	n		Sr				h;h	t;s
MR-34	35	36	98	m	p	C	n	c	w	f	m	c	2	0	0	0	0	n		n		4	n		Sr				h	f
MR-34	36	37	99	m	p	C	n	c	w	f	m	c	4	0.5	0	0	0	n		Bk	l		n		Sr				h	t;f
MR-34	37	38	99	m	p	C	n	c	w	f	m	m	1	0	0	0	0	n		Bk	l	40	n		Sr				h	f
MR-34	38	39	97	m	p	C	n	c	w	f	m	m	1	0	0	0	0	n		n		40	n		Sr				h	f
MR-34	39	40	98	m	p	C	Lp	c	w	f	m	m	2	0	0	0	0	n		n		15	c		Sr				h	f
MR-34	40	41	98	m	p	C	n	c	w	f	m	c	4	0.5	0	0	0	n		n		7	n		Sr				h	f
MR-34	41	42	99	m	p	P	LrSrMy	c	w	f	m	m	5	1	0	0	0	n		Bk	l	3	s		Sr				h	t;f
MR-34	42	43	99	m	p	P,Y	LrSrMy	c	w	f	m	vc	2	0	0	0	0	n		Bk	d	2	r		Sr				h	f
MR-34	43	44	95	m	p	P,Y	LrMy	c	w	f	m	m	4	0.5	0	0	0	n		Bk	d	[illegible]	n		Sr				n	n
MR-34	44	45	98	m	p	P,Y	LrMy	c	w	vf	m	m	1	0	0	0	0	n		Bk;Bk	t;d	2	n		Sr				n	n
MR-34	45	46	96	m	m	P,Y	Lr	c	w	vf	m	m	7	1	0	0	0	n		Bk	d		r	G1	Sr				l	t
MR-34	46	47	95	m	p	P,Y	LpuMy	c	w	f	m	c	2	0	0	0	0	n		Bk	d	40	n		Sr				h	f
MR-34	47	48	96	m	p	P	Lr,puSrw	c	w	f	m	m	2	0	0	0	0	n		n		40	n						h	f
MR-34	48	49	96	m	p	P	Lr,puSrw	c	w	f	m	m	10	1	0	0	0	d	0.5	n		40	n		Sr				h	f
MR-34	49	50	94	m	p	P	Lr,pu	c	w	f	m	vc	3	0.5	0	0	0	n		n			n		Sr				h	t;f
MR-34	50	51	98	m	m	P	Lr	c	w	f	m	vc	5	0.5	0	0	0	n		n		10	n		Sr				h	t;f
MR-34	51	52	97	m	p	P	Lr	c	w	f	m	c	2	2	0	0	0	n		n		40	c		Sr				h	f
MR-34	52	53	90	m	p	P	Lr	c	w	f	m	c	4	0	0	0	0	n		n		9	c		Sr				h	f

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-29	164	165	1	fl,fr	0,25	y,qo	30,3	ms	y	5	huge clay section at base-fault area? Section has green clay throughout
MR-29	165	166	2	fl	0	y	0	h	y	20	base highly fractured and heavily saturated by pyrob.
MR-29	166	167	2								highly fractured and pyrob. saturated at top
MR-29	167	168	1								
MR-29	168	169	1								see first large pebble
MR-29	169	170	0								
MR-29	170	171	1								possible bedding planes along core
MR-29	171	172	1								
MR-29	172	173	1								med. gr. ss section was green
MR-29	173	174	0	fr	20	s	0				the green colour stays in the med. gr. ss layer
MR-29	174	175	0								
MR-29	175	176	0								
MR-29	176	177	0	fr,fr	0,25	o,y	5,0				
MR-29	177	178	0								
MR-29	178	179	0								red lines possibly stylolites, or clay along bedding
MR-29	179	180	0								
MR-29	180	181	0								clay seams between beds, can see it is cross bedded
MR-29	181	182	0								
MR-29	182	183	0								40cm of medium gr. ss section
MR-29	183	184	1								
MR-29	184	185	0								clay seams along bedding?
MR-29	185	186	0								
MR-29	186	187	0								some pebbles are rock frag
MR-29	187	188	0								less course, have pebble beds
MR-29	188	189	0								
MR-29	189	190	0								
MR-29	190	191	0								
MR-29	191	192	0								
MR-29	192	193	0								some clay beds
MR-29	193	194	0								
MR-29	194	195	0								clay drape beds
MR-29	195	196	1								the green colour is around the clay beds
MR-29	196	197	0								middle section appears green
MR-29	197	198	1								
MR-29	198	199	0								
MR-29	199	200	1								
MR-29	200	201	1								
MR-29	201	202	1								
MR-29	202	203	1								
MR-29	203	204	1								a med. gr. ss. bed grading into bed with large pebbles (75mm rock frag.), then cut off at top and overlain by med. gr. ss bed grading into vc. gr. ss
MR-29	204	205	1								
MR-29	205	206	1								
MR-29	206	207	1								
MR-29	207	208	1								
MR-29	208	208.9	0								
MR-34	34	35	2	fr,fr	0,0		0,0				pink clay filled frac's
MR-34	35	36	1	fr	0		0				pink clay filled frac's
MR-34	36	37	2	fr,fl	0,0		0,0				crackle breccia
MR-34	37	38	2	fr,fl	0,0		0,0				crackle breccia
MR-34	38	39	10	fr,fl	0,0		0,0				crackle breccia, breccia
MR-34	39	40	4	fr,fl	0,0		0,0				crackle breccia
MR-34	40	41	3	fr	0		0				no bleached/silicified frac., all h. oil frac. and pink clay in one
MR-34	41	42	1	fr	0		0				start to see colour patterns and yellow staining
MR-34	42	43	1	fr	0		0				abundant disseminated pyrite
MR-34	43	44	0	n	0		0				abundant disseminated pyrite
MR-34	44	45	0	fr	0		0				
MR-34	45	46	40	fr	0		0				darker horizontal of grained bed with clay drapes @ base, top 40% light oil stained (brown)-strong odour
MR-34	46	47	6	fr	0		0				40% broken core
MR-34	47	48	4	fr	0		0				15% broken core, some clay filled frac., most h. oil filled
MR-34	48	49	6	fr	0		0				20% broken core
MR-34	49	50	10	fr	0		0				30% broken core, int. oil on coarser beds
MR-34	50	51	15	fr	0		0				start to see coarse bedding, coarse beds contain intergranular h. oil
MR-34	51	52	5	fr	0		0				30% broken core,h.oil in fract.
MR-34	52	53	3	fr	0		0				

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-34	53	54	98	m	p	P	Lr	c	w	f	m	vc	5	1	0	0	0	n		n		8	n		Sr				h	f
MR-34	54	55	96	m	m	P	Lr	c	w	f	m	c	7	1	0	0	0	n		n		3	n		Sr				h	f
MR-34	55	56	98	m	m	P	Br,y	c	w	vf	vf	m	3	1	0.1	80	0	n		Bk	d	1	n		Sr				h	f
MR-34	56	57	98	m	p	P	Lr	c	w	f	m	c	17	1	0	0	2	w	1	n		7	n		Sr				h	f
MR-34	57	58	99	m	p	P	Lr	c	w	f	c	vc	19	3	0	0	0	n		n		3	n	G1	Sr				h	i;f
MR-34	58	59	99	m	p	P	Lr	c	w	f	m	c	9	4	0	0	0	n		n		6	n	G1	Sr				h	f
MR-34	59	60	99	m	p	P	LrMy	c	w	f	m	c	5	2	0	0	0	n		n		8	n		Sr				h	f
MR-34	60	61	98	t	p	P	Lr	c	m	vf	m	m	1	1	0	0	0	n		Bk	d	5	c		Sr				h	f
MR-34	61	62	99	t	p	C	Sr	c	m	f	m	m	1	0	0	0	0	g	0.1	n		7	r		Sr				h	f
MR-34	62	63	97	t	p	C	n	c	m	f	m	m	1	0	0	0	0	n		n		2	n		Sr				h	f
MR-34	63	64	97	t	p	C	n	c	m	f	m	m	1	0	0	0	0	n		n		2	n		Sr				h	f
MR-34	64	65	99	t	p	C	Lp	c	m	f	m	m	1	0	0	0	0	n		Bk	l	4	n		Sr				h	f
MR-34	65	66	98	t	p	P	Lr	c	m	f	m	m	1	0	0	0	0	n		n		40	n		Sr				h	f
MR-34	66	67	98	t	p	P	Lr	c	m	f	m	c	1	0	0	0	0	g	0.5	n		10	n		Sr				h	f
MR-34	67	68	90	t	p	P	LpSp	c	m	f	m	c	1	0	0	0	0	p	0.1	n		40	r		Sr				h	f
MR-34	68	69	96	t	p	P	Lp	c	m	f	m	m	1	0	0	0	0	p	0.5	n		40	r		Sr				h	f
MR-34	69	70	98	t	m	P	Lr	c	m	f	m	c	1	0	0	0	0	n		n		4	n		Sr				h	f
MR-34	70	71	99	t	m	P	LrSr	c	m	f	m	m	1	0	0	0	0	g	0.2	n		4	n		Sr				h	f
MR-34	71	72	97	t	m	P	LrSr	c	m	f	m	m	1	0	0	0	0	g	0.3	n		40	n		Sr				h	f
MR-34	72	73	98	t	m	P	Lr	c	m	f	m	m	1	0	0	0	0	p	0.3	n		2	n		Sr				n	n
MR-34	73	74	99	t	m	P	Lr	c	m	f	m	c	1	0	0	0	0	g	0.5	n		3	n		Sr				n	n
MR-34	74	75	100	t	p	C	Lp	c	m	f	m	c	1	0	0	0	0	p	2	n		2	n		Sr				n	n
MR-34	75	76	96	t	p	C	Lp	c	m	f	m	m	1	0	0	0	0	p	2	n		40	n		Sr				n	n
MR-34	76	77	90	t	p	P	Lr	c	m	f	m	m	1	0	0	0	0	n		n		40	n		Sr				n	n
MR-34	77	78	99	t	p	P	Lp	c	m	f	m	m	1	0	0	0	0	g	0.2	n		2	n		Sr				n	n
MR-34	78	79	98	t	p	P	Lp	c	m	f	m	c	1	0	0	0	0	g	0.1	Bk	d	2	n		Sr				n	n
MR-34	79	80	99	t	p	P	U	c	m	f	m	c	1	0	0	0	0	n		Bk	d	2	n		Sr				n	n
MR-34	80	81	98	t	p	P	U	c	m	f	m	c	1	0	0	0	0	n		n		2	n		Sr				n	n
MR-34	81	82	98	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n		Bk	d	5	n		Sr				n	n
MR-34	82	83	96	t	p	C	U	c	m	f	m	m	1	0	0	0	0	n		n		40	n		Sr				h	f
MR-34	83	84	97	t	p	C	U	c	m	f	m	m	1	0	0		0	g	0.2	Bk	l	6	r		Sr				n	n
MR-34	84	85	98	t	p	P	Lp	c	m	f	m	m	1	0	0	0	0	n		Bk	l	40	n		Sr				n	n
MR-34	85	86	92	t	p	P	LrSr	c	w	f	m	c	2	0	0	0	0	d	1	n		0	n		Sx				n	n
MR-34	86	87	98	t	p	P	LrSr	c	w	f	m	c	1	0	0	0	0	p	0.3	Br	l	4	c		Sr				n	n
MR-34	87	88	99	t	p	P	LrSr	c	w	f	m	m	1	0	0	0	0	n		n		3	n		Sx				n	n
MR-34	88	89	97	t	p	P	LrSr	c	w	f	m	m	2	0	0	0	0	n		n		1	n		Sx				n	n
MR-34	89	90	99	t	p	P	Lr	c	w	f	m	c	1	0	0	0	0	n		Br	l	2	n		Sr				n	n
MR-34	90	91	98	t	p	P	Lr	c	w	f	m	c	1	0	0	0	0	n		n		0	n		Sx				n	n
MR-34	91	92	97	t	p	P	Lr	c	w	f	m	c	1	0	0	0	0	n		Bk	d	5	n		Sx				n	n
MR-34	92	93	99	t	p	P	Lr	c	w	f	m	c	1	0	0	0	0	p	0.3	Bk	d	0	n		Sr				n	n
MR-34	93	94	99	t	p	P	LrSr	c	w	f	f	c	1	0	0	0	0	n		n		2	n		Sr				n	n
MR-34	94	95	98	t	p	P	Lr	c	w	f	m	c	1	0	0	0	0	n		BR;Bk	l;d	2	n		Sr				n	n
MR-34	95	96	96	t	p	P	LrSr	c	w	f	f	c	2	0	0	0	0	n		n		40	n		Sr				n	n
MR-34	96	97	97	t	p	P	LrSr	c	w	f	m	c	1	0	0	0	0	p	0.4	Bk	d	8	n		Sr				n	n
MR-34	97	98	96	t	p	P	LrSr	c	w	f	f	m	1	0	0	0	0	n		n		2	n		Sx				n	n
MR-34	98	99	94	t	p	P	U	c	w	f	f	c	1	0	0	0	0	n		Bk	d	5	n		Sx				n	n
MR-34	99	100	99	t	p	P	Lp	c	w	f	f	c	1	0	0	3	0	n		n		6	n		Sr				n	n
MR-34	100	101	97	t	p	P	Lp	c	m	f	f	c	1	0	0	0	0	n		Bk	d	2	n		Sr				n	n
MR-34	101	102	98	t	p	P	Lp	c	m	f	f	c	1	0	0	0	0	n		Bk	d	6	n		Sr				n	n
MR-34	102	103	96	m	p	C	Lp	c	m	f	f	m	1	0	0	0	0	n		n		40	n		Sr				n	n
MR-34	103	104	96	m	p	C	Mbr	c	m	f	m	c	1	0	0	0	0	n		n		40	n		Sr				n	n
MR-34	104	105	60	m	p	C	U	c	m	f	f	m	1	0	0	0	0	n		n		40	n		Sr				n	n
MR-34	105	106	45	m	p	C	U	c	m	f	m	m	2	0	0	0	0	n		n		40	n		Sr				n	n
MR-34	106	107	55	m	p	C	U	c	m	f	m	c	1	0	0	0	0	n		n		40	n		Sr				n	n
MR-34	107	108	97	m	p	C	Lp	c	m	f	f	c	1	0	0	0	0	n		n		6	n		Sr				n	n
MR-34	108	109	97	m	p	C	U	c	m	f	f	c	1	0	0	0	0	n		Bk	l	40	n		Sr				n	n
MR-34	109	110	47	m	p	C	U	c	m	f	m	m	1	0	0	0	0	n		n		40	n		Sr				n	n
MR-34	110	111	96	m	p	C	U	c	m	f	m	c	1	0	0	0	0	n		n		40	n		Sr				h	f
MR-34	111	112	96	m	p	C	Lp	c	m	f	f	c	1	0	0	0	0	n		n		40	n		Sx				n	n
MR-34	112	113	95	m	p	C	U	c	m	f	m	c	1	0	0	0	0	n		n		40	n		Sr				h	f
MR-34	113	114	97	t	p	C	U	c	w	f	f	m	1	0	0	0	0	n		n		40	n		Sx				h	f
MR-34	114	115	96	t	p	C	U	c	w	f	f	m	1	0	0	0	0	n		n		40	n		Sx				h	f
MR-34	115	116	70	t	p	P	Lr	c	w	f	f	m	1	0	0	0	0	d	0.5	n		22	n		Sr				h	f
MR-34	116	117	96	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0	d	0.5	n		40	n		Sr				h	f

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-34	53	54	2	fr	0		0				10% core broken
MR-34	54	55	1	fr	0		0				silicified frac., strongly hemitized section @ base
MR-34	55	56	1	fr	0		0				top 80% is vf. grained, yellow and peach in colour, has small black disseminated spots in yellow area
MR-34	56	57	2	fr	0		0				see pebble beds
MR-34	57	58	3	fr	0		0				pebble lag
MR-34	58	59	2	fr	0		0				highly frac. in fract. area, loss coarse bedding
MR-34	59	60	3	fr	0		0				frac. displace leis., possible fault zone?
MR-34	60	61	1	ft;fr	0;0		0;0				faults have slickenlines?, clay filled frac.
MR-34	61	62	2	fr	0		0				silicified frac. at top, beginning of bleaching
MR-34	62	63	1	ft	0		0				silicified frac.
MR-34	63	64	1	ft	0		0				10% broken core by fault
MR-34	64	65	1	ft;fr	0;0		0;0				
MR-34	65	66	2	ft;fr	0;0		0;0				large fault/frac. zone, 100% broken core
MR-34	66	67	2	fr	0		0				10% broken core, still in fault zone?
MR-34	67	68	1	fr	0		0				25% broken core
MR-34	68	69	4	ft;fr	0;0		0;0				Fault breccia
MR-34	69	70	1	ft	0		0				
MR-34	70	71	1	fr	0		0				
MR-34	71	72	6	ft;fr	0;0		0;0				brecciation
MR-34	72	73	0	fr	0		0				sid?/ brown on a frac.
MR-34	73	74	0	fr	0		0				start to see more intraclasts
MR-34	74	75	0	fr	0		0				br. clay filled frac. (sid.?)
MR-34	75	76	0	ft;fr	0;0		0;0				highly frac., 5% broken core
MR-34	76	77	0	ft;fr	0;0		0;0				drusy quartz, highly frac.-silicified
MR-34	77	78	0	ft	0		0				silicified faults
MR-34	78	79	0	ft	0		0				
MR-34	79	80	0	ft	0		0				one large fault with pyrite along fault
MR-34	80	81	0	fr	0		0				
MR-34	81	82	0	fr	0		0				2 frac brown (pyrite?) filled
MR-34	82	83	1	fr	0		0				40% broken core
MR-34	83	84	0	fr	0		0				pyrite filled frac.
MR-34	84	85	0	fr	0		0				highly frac. at base-open recystallized frac., pyrite lined frac.
MR-34	85	86	0	n	0		0				
MR-34	86	87	0	fr	0		0				frac. have crystal growth, 1 fault
MR-34	87	88	0	fr	0		0				
MR-34	88	89	0	fr	0		0				frac. have crystal growth
MR-34	89	90	0	fr	0		0				brown filled frac.
MR-34	90	91	0	n	0		0				
MR-34	91	92	0	ft	0		0				start to see coarse bedding, frac. crystal/pyrite filled, beginning of open crystal filled frac
MR-34	92	93	0	n	0		0				
MR-34	93	94	0	fr	0		0				see abundant coarse bedding
MR-34	94	95	0	ft	0		0				main fault running through section, becomes more bleached
MR-34	95	96	0	ft	0		0				highly faulted/frac., a lot of open frac. with crystallization, some silicified frac.
MR-34	96	97	0	ft;fr	0;0		0;0				fault with slickenlines, crystal/pyrite filled open frac., 10% broken core
MR-34	97	98	0	fr	0		0				
MR-34	98	99	0	ft;fr	0;0		0;0				slickenline on fault, a bit more frac., diss. pyrite on frac
MR-34	99	100	0	ft;fr	0;0		0;0				frac. cross fault
MR-34	100	101	0	fr	0		0				clay filled frac.
MR-34	101	102	0	fr	0		0				open cryst. frac., some clay filled frac.
MR-34	102	103	0	br	0		0				brecciated fault zone at base, highly frac., clay filled and open frac., 20% broken core
MR-34	103	104	0	bx;ft	0;0		0;0				sandy gouge
MR-34	104	105	0	bx;ft	0;0		0;0				brecciated fault zone at top, 50% broken core, missing half of core
MR-34	105	106	0	fr	0		0				highly frac., missing half of core, 50% broken core
MR-34	106	107	0	fr	0		0				highly frac., missing half of core, 50% broken core
MR-34	107	108	0	fr	0		0				
MR-34	108	109	0	fr	0		0				large amount of clay filled frac.
MR-34	109	110	0	fr	0		0				breccia
MR-34	110	111	1	bx;ft	0;0		0;0				abundant clay gouge
MR-34	111	112	0	bx;ft	0;0		0;0				clay filled brecciated zone at top, large clay filled fault at base
MR-34	112	113	1	bx;ft	0;0		0;0				brecciated zone at top, faulted/frac. at base, 50% broken core
MR-34	113	114	2	fr	0		0				20% broken core @ top
MR-34	114	115	2	bx;ft	0;0		0;0				clay rich fault/brecciated zone, crystal growth on frac.
MR-34	115	116	1	fr;ft	0;0		0;0				
MR-34	116	117	1	ft;fr	0;0		0;0				broken core, clay fgouge

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C> 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSSG Grain Size	PSSS Grain Size	PSSF Grain Size	PSSM Grain Size	PSSP Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-34	117	118	94	t	p	P	U	c	w	f	m	m	1	0	0	0	0	n		n		40	n		Sr				h	f
MR-34	118	119	85	t	p	P	U	c	m	f	f	m	1	0	0	0	0	n		n		40	r		Sr				h	f
MR-34	119	120	98	t	p	P	Lp	c	m	f	f	m	1	0	0	0	0	p	0.5	n		8	n		Sr				h	f
MR-34	120	121	98	t	p	P	Lp	c	m	f	f	m	1	0	0	0	0	n		n		40	s		Sx				h	f
MR-34	121	122	97	m	p	P	LrSr	c	m	f	f	m	1	0	0	0	0	n		n		40	n		Sx				h	f
MR-34	122	123	98	m	p	P	LpSr	c	m	f	m	m	1	0	0	0	0	n		n		40	n		Sm				h	f
MR-34	123	124	96	m	p	P	LpSr	f	w	f	m	m	1	0	0	0	0	n		n		40	s		Sx				h	f
MR-34	124	125	80	m	p	P	LpSr	c	m	f	f	m	1	0	0	0	0	n		n		40	n		Sx				h	f
MR-34	125	126	98	m	p	P	Lr	c	m	f	m	m	1	0	0	0	0	n		n		11	n		Sr				h	f
MR-34	126	127	98	m	p	P	Lr	c	m	f	f	m	1	0	0	0	0	d	0.5	n		9	n		Sr				h	f
MR-34	127	128	95	m	p	C	U	c	m	f	f	m	1	0	0	0	0	n		n		15	n		Sr;Sm				h	f
MR-34	128	129	97	m	p	P	Lr	c	m	f	m	m	1	0	0	0	0	n		n		15	n		Sr				h	f
MR-34	129	130	97	m	p	P	Lr	c	m	f	f	m	1	0	0	0	0	n		n		7	n		Sr				h	f
MR-34	130	131	98	t	p	C	Lp	c	m	f	m	m	1	0	0	0	0	p	0.2	n		7	n		Sr				h	f
MR-34	131	132	97	t	p	C	Lp	c	m	f	f	m	1	0	0	0	0	n		n		8	n		Sr				h	f
MR-34	132	133	97	t	p	P	Lp	c	m	f	f	m	1	0	0	0	0	p	0.2	n		40	n		Sr				h	f
MR-34	133	134	80	t	p	P	Lp	c	m	f	f	m	1	0	0	0	0	n		n		6	n		Sr				h	f
MR-34	134	135	98	t	p	P	Lp	c	m	f	f	m	1	0	0	0	0	n		n		10	n		Sx				h	f
MR-34	135	136	98	t	p	P	Lp	c	m	f	f	m	1	0	0	0	0	n		n		5	n		Sr				h	f
MR-34	136	137	97	t	p	P	Lp	c	m	f	f	m	1	0	0	0	0	n		n		40	n		Sr				h	f
MR-34	137	138	97	t	p	P	Lp	e	w	f	m	m	1	0	0	0	0	n		n		6	n		Sr				h	f
MR-34	138	139	45	t	p	P	Lp	e	w	f	m	m	1	0	0	0	0	n		n		40	n		Sr				h	f
MR-34	139	140	97	m	p	P	Lp	e	w	f	m	m	1	0	0	0	0	n		n		3	n		Sr				h	f
MR-34	140	141	98	m	p	C	Lp	c	m	f	f	m	1	0	0	0	0	n		n		40	n		Sl				h	f
MR-34	141	142	99	m	p	C	Lr	c	m	f	m	m	1	0	0	0	0	n		n		5	n		Sr				h	f
MR-34	142	143	98	m	p	P	Lr	c	m	f	f	m	1	0	0	0	0	n		n		10	n		Sr				h	f
MR-34	143	144	98	m	p	P	Lr,pu	c	m	f	f	c	1	0	0	0	0	n		n		5	r		Sr				h	f
MR-34	144	145	98	m	p	P	Lr,pu	c	m	f	f	c	1	0	0	0	0	n		n		2	n		Sx				h	f
MR-34	145	146	97	m	p	P	Lr,pu	c	m	f	m	vc	1	0	0	0	0	n		n		3	n		Sr				h	f
MR-34	146	147	99	m	p	C	Lr	c	m	vf	m	c	3	0.5	0	0	0	n		n		4	n		Sr				h	f
MR-34	147	148	98	m	p	C	Lp	c	m	f	f	c	2	0	0	0	0	n		n		8	n		Sr				h	f
MR-34	148	149	97	m	p	C	Lr	c	m	f	m	vc	2	0	0	0	0	d	0.5	n		5	n		Sr				h	f
MR-34	149	150	99	m	p	C	Lp	c	m	f	f	c	1	0	0	0	0	d	0.5	n		2	n		Sx				h	f
MR-34	150	151	99	m	p	P	Lpu	c	m	f	f	c	4	0.5	0	0	0	p	0.3	n		5	n		Sx				h	f
MR-34	151	152	98	m	p	P	Lp	c	m	f	f	c	1	0	0	0	0	n		n		4	n		Sr				h	f
MR-34	152	153	98	m	p	P	Lr,pu	c	m	f	f	c	1	0	0	0	0	n		n		6	n		Sr				h	f
MR-34	153	154	97	m	p	P	Lr	c	w	f	m	vc	2	0	2	0	0	n		n		40	n		Sr				h	f
MR-34	154	155	99	m	p	P	Lr	c	m	f	f	vc	2	0	0	0	0	d	0.3	n		4	n		Sx				h	f
MR-34	155	156	99	m	p	P	Lr	c	m	f	m	vc	1	0	0	0	0	n		n		4	n		Sr				h	f
MR-34	156	157	99	m	p	P	Lr	c	m	f	m	c	3	1	0	0	0	n		n		6	n	G1	Sr				h	f
MR-34	157	158	97	m	p	P	Lr	c	m	f	m	vc	4	1	0	0	0	n		n		6	n		Sr				h	f
MR-34	158	159	98	m	p	P	Lr	c	m	f	m	c	2	0	0	0	0	d	0.3	n		4	n		Sr				h	f
MR-34	159	160	99	m	p	P	Lr	c	m	f	m	c	2	0	0	0	0	n		n		6	r		Sr				h	f
MR-34	160	161	99	m	p	P	Lr,pu	c	m	f	m	vc	2	0	0	0	0	d	2.5	n		4	n		Sr				h	f
MR-34	161	162	98	m	p	C	Lp	c	m	f	m	c	3	1	0	0	0	n		n		3	n		Sx				h	f
MR-34	162	163	98	m	p	C	Lp	c	m	f	m	vc	4	1	0	0	0	n		n		7	n		Sr				h	f
MR-34	163	164	96	m	p	C	Lp	c	m	f	m	vc	4	1	0	0	0	p	0.3	n		3	n		Sr				h	f
MR-34	164	165	97	m	p	C	Lp	c	m	f	m	vc	3	2	0	0	2	n		n		4	n		Sr				h	f,i
MR-34	165	166	99	m	p	C	Lpu	c	m	f	m	g	3	3	0	0	0	d	0.5	Br	l	3	n		Sr				h	f,i
MR-34	166	167	98	m	p	P	Lpu,r	c	m	vf	m	g	5	3	0	0	0	d	2	Br	l	2	n		Sr				h	f
MR-34	167	168	97	m	p	P	Lp	c	m	m	m	vc	2	0	2	0	0	p	0.2	n		5	n		Sr				h	f
MR-34	168	169	96	m	p	P	Lp	c	m	m	m	vc	2	0	0	0	0	n		n		40	n		Sr				h	f
MR-34	169	170	98	m	p	P	Bo	c	m	f	m	vc	3	1	0	0	0	n		n		2	n		Sl				h	f
MR-34	170	171	99	m	p	P	Bo	c	m	f	m	vc	4	1	0	0	0	n		n		0	n		Sl				h	i
MR-34	171	172	99	m	p	P	Bo	c	m	f	m	vc	1	0	0	0	0	n		n		2	n		Sl				h	f
MR-34	172	173	91	m	p	C	U	c	m	f	m	g	4	3	0	0	0	n		n		0	n	G1	Sl				h	i
MR-34	173	174	99	m	p	C	U	c	m	f	m	ps	6	2	0	0	0	n		n		0	n	G1	Sl				h	i
MR-34	174	175	99	m	p	P	U	c	m	f	m	ps	14	2	0	0	0	n		Br	d	2	r		Sl				h	i
MR-34	175	176	97	m	p	P	U	c	m	f	f	g	1	0	0	0	0	n		n		4	b		Sr				h	f
MR-34	176	177	97	e	p	P	Sr	c	m	f	m	ps	14	1	0	0	0	n		n		4	b		Sx				h	f
MR-34	177	178	94	e	p	Bn	LrSr	c	w	f	c	g	2	0	0	0	0	n		n		4	n		Sr				h	f
MR-34	178	179	85	e	p	Bn	LrSr	c	w	f	m	ps	6	2	0	0	0	n		n		6	n		Sr				h	f
MR-34	179	180	96	e	p	Gn	U	c	w	m	c	ps	22	2	0	0	0	n		n		1	n		Sr				h	f
MR-34	180	181	97	e	m	Gn	Lr	c	m	m	c	ps	16	1	0	0	0	n		n		6	n		Sr				h	f

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-34	117	118	2	ft;fr	0;0		0;0				core is desilicified
MR-34	118	119	2	ft;fr	0;0		0;0				60% broken core
MR-34	119	120	2	fr	0		0				
MR-34	120	121	1	ft;fr	0;0		0;0				clay gouge
MR-34	121	122	3	ft;fr	0;0		0;0				clay gouge, broken core
MR-34	122	123	2	ft	0		0				slickenlines, clay filled faults, desilicified
MR-34	123	124	2	ft	0		0				portions have been rotated (bedding is vertical)
MR-34	124	125	2	ft;fr	0;0		0;0				silicified frac. @ top, clay filled fault
MR-34	125	126	3	fr	0		0				silicified frac, mostly h. oil filled
MR-34	126	127	5	fr	0		0				
MR-34	127	128	3	fr	0		0				h.oil filled frac, crystal growth in frac.
MR-34	128	129	5	fr	0		0				
MR-34	129	130	5	fr	0		0				
MR-34	130	131	2	ft;fr	0;0		0;0				slickenlines on fault, silicified frac. @ top
MR-34	131	132	2	ft;fr	0;0		0;0				some desilicification, lots of clay gouge
MR-34	132	133	2	ft;fr	0;0		0;0				some breccia, clay gouge
MR-34	133	134	5	fr	0		0				
MR-34	134	135	5	fr	0		0				h.oil filled frac.
MR-34	135	136	3	fr	0		0				
MR-34	136	137	5	ft;fr	0;0		0;0				clay filled faults @ base, many silisified frac. above
MR-34	137	[illegible]	[illegible]	ft;fr	0;0		0;0				clay filled fault
MR-34	138	139	2	fr	0		0				bottom half is friable, broken core
MR-34	139	140	2	fr	0		0				a lot of friable & broken core
MR-34	140	141	3	ft;fr	0;0		0;0				possible bleached & siliciified fault/frac.
MR-34	141	142	1	ft;fr	0;0		0;0				large qtz filled fault/frac. at base, possibly out of place
MR-34	142	143	2	fr	0		0				silicified frac.
MR-34	143	144	2	fr	0		0				
MR-34	144	145	2	fr	0		0				beginning of well developed x-bedding
MR-34	145	146	2	fr	0		0				clay drapes @ base
MR-34	146	147	2	ft;fr	0;0		0;0				2 large clay filled faults, many thin clay beds, begin to see more clay
MR-34	147	148	3	fr	0		0				clay filled frac. & clay layers
MR-34	148	149	2	ft;fr	0;0		0;0				clay filled fault @ base
MR-34	149	150	2	fr	0		0				h.oil filled frac.
MR-34	150	151	3	fr	0		0				
MR-34	151	152	2	fr	0		0				
MR-34	152	153	5	fr	0		0				well developed crystal growth in h. oil filled frac.s
MR-34	153	154	2	ft;fr	0;0		0;0				clay filled fault , friable at fault-15% of core (desilicified)
MR-34	154	155	2	fr	0		0				h. oil filled frac. crosses intraclast
MR-34	155	156	3	fr	0		0				
MR-34	156	157	5	fr	0		0				
MR-34	157	158	2	ft;fr	0;0		0;0				fault displaces bedding, thin silt bed @ top
MR-34	158	159	2	fr	0		0				
MR-34	159	160	2	fr	0		0				clay filled frac.
MR-34	160	161	1	fr	0		0				clay intraclast layer
MR-34	161	162	2	fr	0		0				beacoming bleached @ base
MR-34	162	163	2	ft;fr	0;0		0;0				clay filled fault, start to see vc. grained beds
MR-34	163	164	2	fr	0		0				
MR-34	164	165	3	ft;fr	0;0		0;0				x microconlomerate; abundant clay gouge2cm G
MR-34	165	166	2	fr	0		0				beginning of coarse grained bedding, start of pebbles, stylolite filled with siderite?
MR-34	166	167	1	fr	0		0				granule beds interbedded with v.f grained beds, contains clay layers
MR-34	167	168	2	ft;fr	0;0		0;0				8cm wide clay filled fault, abundant clay beds, possible clay filled stylolites
MR-34	168	169	4	ft;fr	0;0		0;0				clay filled fault, highly fractured-h.oil filled
MR-34	169	170	1	ft;fr	0;0		0;0				fault with slickenlines
MR-34	170	171	1	n	0		0				
MR-34	171	172	1	fr	0		0				
MR-34	172	173	2	n	0		0				
MR-34	173	174	4	n	0		0				start to see pebbles-mainly qtz
MR-34	174	175	1	fr	0		0				siderite? filled fracs
MR-34	175	176	3	fr	0		0				some qtz bands
MR-34	176	177	2	fr	0		0				contact -coarse with some pillows of fine gr., then from c. gr. to fine gr.-sharp, FP appears as if soft sediment when MFc was deposited
MR-34	177	178	2	fr	0		0				hard to tell bedding with coarse bedding
MR-34	178	179	2	ft;fr	0;0		0;0				large clay filled fault @ base
MR-34	179	180	1	ft	0		0				fault has slickenlines, granules have some rock frag
MR-34	180	181	1	ft;fr	0;0		0;0				1 clay filled fault-can see slickenlines

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-34	181	182	97	a	m	Bn,Gn		c	m	m	c	ps	6	1	0		0	n		n		0	n		Sr				n	n
MR-34	182	183	98	a	p	Bn,Gn	U	c	w	m	c	ps	5	2	0		0	n		n		0	n		Sr				n	n
MR-34	183	184	98	a	p	Bn,Gn	U	c	w	m	c	pc	36	4	0		0	n		n		0	n		Sx				n	n
MR-34	184	185	93	a	p	Bn	U	c	w	m	vc	pm	12	2	4	0	0	n		n		2	n		Sr				n	n
MR-34	185	186	98	a	p	Bn	U	c	w	vf	c	pc	28	5	0	0	5	n		n		1	n		Sr				n	n
MR-34	186	187	97	a	p	Bn	U	c	w	f	c	ps	6	7	8	0	13	n		n		4	n		Sr				n	n
MR-34	187	188	88	a	p	Bn	U	c	w	m	c	g	4	2	0	0	0	n		n		1	n		Sr				n	n
MR-34	188	189	97	a	m	M,Bn	U	c	w	m	vc	pc	30	10	0		15	n		n		0	n		Sr				n	n
MR-34	189	190	65	a	m	M,Bn,Gn	Mm	c	w	f	vc	ps	6	15	0	0	10	n		n		1	n		Sr				n	n
MR-34	190	191	94	a	m	M,Bn,Gn	Mm	c	w	f	vc	ps	13	6	0	0	4	n		n		2	n		Sr				n	n
MR-34	191	192	97	a	m	M,Bn	Mm	c	w	y	vc	g	20	2	18	0	0	n		n		2	n		Sr				n	n
MR-34	192	193	98	a	d	M,Bn	Mm	c	w	y	vc	ps	10	5	10	0	4	n		n		0	n		Sr				n	n
MR-34	193	194	93	a	d	Gn,Bn	U	c	w	m	vc	ps	35	10	0	0	15	n		n		0	n		Sr				n	n
MR-34	194	195	98	a	d	Gn,Bn	U	c	w	m	vc	pm	22	15	0		25	n		n		0	n		Sr				n	n
MR-34	195	196	75	a	d	Gy,Gn	U	c	w	m	m	ps	10	5	0		8	n		n		0	n		Sl				n	n
MR-34	196	197	0																											
MR-34	197	198	0																											
MR-34	198	199	0																											
MR-34	199	200	12	a	d	Gy	U	c	w	c	vc	ps	14	5	0	0	8	n		n			n		Sm				n	n
MR-34	200	201	98	a	d	Gy	U	c	w	c	vc	pm	25	6	0		8	n		Bk	d	3	n		Sr				n	n
MR-34	201	202	98	a	d	Gy,Bn	U	c	w	c	vc	ps	25	5	0		0	n		n		0	n		Sr				n	n
MR-35	24	25	40	t	p	C	Lr	c	w	f	f	c	2	0	0	0	0					6				Fr			t	f
MR-35	25	26	97	t	p	C	Lr	c	m	f	m	m	1	0	0	0	0					30				Fm;Fr			t	f
MR-35	26	27	100	t	p	C	Lr	c	m	f	f	m	2	0	0	0	0					15	s		Sr	Fm			t	f
MR-35	27	28	96	t	p	C	Lr	c	m	f	m	m	2	0	0	0	0					20			Sr				t	f
MR-35	28	29	40	t	p	C	Lr	c	m	f	m	m	2	0	0	0	0					6			Sr					
MR-35	29	30	100	t	m	P,Y	Ld	c	w	f	m	m	2	0	0	0	0			Bk	d	9			Sr	Fm			t	f
MR-35	30	31	100	tm	p	C,Y	Ld	c	w	f	m	m	2	0	0	0	0					10			Sr					
MR-35	31	32	96	t	m	C	Lr	c	w	s	m	m	1	0	0	24	0			Bk	d	13			Sr		Mh		t	f
MR-35	32	33	99	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0					9			Sr;Sx				t	f
MR-35	33	34	99	t	p	C	Lr	c	w	f	m	m	3	1	0	0	0	w	0.7			10			Sx;Sr				t	f
MR-35	34	35	97	t	m	P	Lr	c	w	f	m	m	6	1	0	0	0	d	0.4			8			Sr;Sx				t	f
MR-35	35	36	100	t	m	P,O	Lr	c	w	vf	m	m	3	1	2	10	0					7			Sr	Fh	Mh		t	f
MR-35	36	37	98	t	m	P,O	Lr	c	w	vf	m	m	6	1	0	10	0	w	0.8			12			Sr	Fh			t	f
MR-35	37	38	98	t	p	C	Lr	c	m	f	m	m	3	1	0	0	0					20			S?;Sm				t	f
MR-35	38	39	100	t	p	C	Lr	c	m	f	m	m	3	1	0	0						10	s		Sr;S?				t	f
MR-35	39	40	100	t	p	P	Lr	c	m	f	f	m	3	1	0	0	0					7				Fm;F?;Fr			t	f
MR-35	40	41	100	t	p	C	Lr	c	m	f	m	m	1	0	0	0	0					15			S?	Fm			t	f
MR-35	41	42	98	t	p	C	Lr	c	m	f	f	m	7	1	0	0	0					8				Fr			t	f
MR-35	42	43	100	t	p	C	Sd	c	m	f	f	m	5	0	0	0	0					18				Fr;Fm			t	f
MR-35	43	44	96	t	p	C	Lr,Sr	c	w	f	m	m	8	1	0	0	0					16			Sr				t	f
MR-35	44	45	100	t	p	C	Lr	c	m	f	f	m	3	1	0	0	0					10	s		Sr	Fr;Fm			t	f
MR-35	45	46	100	t	p	C	Lr	c	s	f	m	m	8	2	0	0	0					30			Sr				t	f
MR-35	46	47	100	t	p	C	Lr	c	m	f	m	c	7	3	0	0	0					11			Sr				t;t	f;i
MR-35	47	48	100	tm	p	P	Ld	c	w	f	m	m	3	1	0	0	0					7			Sr				t	f
MR-35	48	49	100	tm	p	P	Lr	c	w	f	f	m	4	1	0	0	0					9	s			Fr			t	f
MR-35	49	50	99	t	p	C	Lr	c	w	f	m	m	2	0	0	0	0					4			Sr				t	f
MR-35	50	51	100	t	p	C	Lr	c	w	f	f	m	4	1	0	0	0					5				Fm;Fr			t	f
MR-35	51	52	100	t	p	C	Lr	c	w	f	f	m	5	0	0	0	0			Bn	d	8				Fr;Fm			t	f
MR-35	52	53	100	t	p	C	Lr	c	w	f	f	m	2	0	0	0	0					3				Fr;Fm				
MR-35	53	54	98	tm	p	C	Ld	c	w	vf	f	c	5	2	0	0	0					8			Sr	Fr				
MR-35	54	55	98	t	p	C	Lr	c	w	f	f	m	5	1	0	0	0					8	s2			Fr				
MR-35	55	56	86	t	p	C	Ld	c	w	f	f	m	10	1	0	0	0			Bn	d	4			Sr	Fr;Fm				
MR-35	56	57	100	t	p	C,Pu	M	c	w	f	f	m	3	1	0	0	0			Bn	d				Sr	Fm				
MR-35	57	58	100	t	p	C,Pu	M	c	w	f	m	m	3	1	0	0	0			Bn	d	1	s		Sr	Fm				
MR-35	58	59	99	t	p	C	Ld	c	w	f	f	c	3	1	0	0	0			Bn	d	1			Sr	Fm				
MR-35	59	60	100	mt	m	C	Ld	c	w	f	c	vc	30	7	0	0	3			Bn	d	1			Sr					
MR-35	60	61	100	mt	m	P	Lr	c	w	f	c	c	15	2	0	0	0			Bn	d	2		G1	Sr					
MR-35	61	62	93	mt	m	P	Lr,Sr	c	w	f	c	c	6	1	0	0	0			Bn	d	2	s		Sr	Fm				
MR-35	62	63	100	mt	m	P	Lr	c	w	f	m	c	6	2	0	0	0			Bn	d	1	s		Sr					
MR-35	63	64	100	mt	m	P	Lr	c	w	f	m	c	12	2	0	0	0			Bn	d				Sr					
MR-35	64	65	100	mt	m	P	Lr	c	w	f	m	c	7	2	0	0	0					4	s		Sr					
MR-35	65	66	100	mt	m	P	Lr	c	w	f	m	vc	8	2	0	0	0			Bn	d	4	s		Sr					
MR-35	66	67	100	mt	m	P	Lr	c	w	f	c	c	7	2	0	0	0					4			Sr					

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-34	181	182	0	n	0		0				lighter coloured core (l. br.) v. clay rich, dark gr. more silicified? and less clay
MR-34	182	183	0	n	0		0				see rock frag. in c. grains
MR-34	183	184	0	n	0		0				first appearance of v. large pebbles-aliqtz and rounded, smaller pebbles qtz and rock frag
MR-34	184	185	0	ft	0		0				clay filled faults
MR-34	185	186	0	fr	0		0				silicified frac, a pebble has intraclast in it, gravely ss (5cm)
MR-34	186	187	0	ft	0		0				sets of clay filled faults, contain slickenlines, gravely ss (13cm)
MR-34	187	188	0	ft	0		0				clay filled fault
MR-34	188	189	0	n	0		0				gravely ss (15cm), hem.?-red clay rich
MR-34	189	190	0	fr	0		0				alternating fine gr. and granule bedding, gravely ss (10cm)
MR-34	190	191	0	fr	0		0				clay filled frac., bleaching along frac.
MR-34	191	192	0	ft	0		0				2 fault/shear zones, large one @ top=15cm, look like clay beds, have purple and green colour
MR-34	192	193	0	n	0		0				abundant orange altered clay @ base, beginning of alteration?
MR-34	193	194	0	n	0		0				15cm microconglomerate
MR-34	194	195	0	n	0		0				see red clay @ top and green clay @ base, containsbr. clay intraclasts, finner gr. section @ base
MR-34	195	196	0	n	0		0				greenclay in coarser beds, red clay in finner gr. beds, altering coarse and finner grain bedding
MR-34	196	197									missing core: stored @ key lake
MR-34	197	198									missing core: stored @ key lake
MR-34	198	199									missing core: stored @ key lake
MR-34	199	200	0	n	0		0				a lot coarser grained, 90% core missing
MR-34	200	201	0	ft;fr	0;0		0;0				dark green clay alt. around fault?, pyrite nodules in fracture
MR-34	201	202	0	n	0		0				dark green/black altered clay, finner grained
MR-35	24	25	0.5	fr	40	qo	1				top of hole at 24.6m, half a metre of overburden pebbles at top
MR-35	25	26	0.5	fr	20	qd	1				Highly broken and fractured core
MR-35	26	27	0.5	bx	10	qo	180				Silicified brecciated zone
MR-35	27	28	0.5	ft	10	qo	20				silicified zones
MR-35	28	29		fr	50	py	1				
MR-35	29	30	0.5	fr	10	py	1				Yellow staining from pyrite
MR-35	30	31		fr	30	py	1				
MR-35	31	32	0.5	fr	40	py	1				
MR-35	32	33	0.5								Steep bedding?
MR-35	33	34	0.5								
MR-35	34	35	0.5								May have steep bedding-but angle of hole is 60 degrees
MR-35	35	36	0.5								
MR-35	36	37	0.5								Broken core
MR-35	37	38	0.5	fr		qo	300				Silicified fracture zone, broken and ground core
MR-35	38	39	0.5	fr		qo	200				Silicified fracture zone, near vertical bedding
MR-35	39	40	0.5	ft;fr	10;30	qo;py	10;1				
MR-35	40	41	0.5	fr;fr	30	qo;py	300;1				Silicified fract zone
MR-35	41	42	0.5	fr		qo	100				
MR-35	42	43	0.5	fr	30	qd	2				Silicified fractures
MR-35	43	44	0.5								
MR-35	44	45	0.5	fr		qo	250				Silocified fracture zone
MR-35	45	46	1	ft;ft	40	qo;y	480;4				Large silicified zone, has clay filled faults through it
MR-35	46	47	1	fr	10	qo	5				
MR-35	47	48	0.5								
MR-35	48	49	0.5								
MR-35	49	50	0.5								
MR-35	50	51	0.5								
MR-35	51	52	0.5								
MR-35	52	53									
MR-35	53	54									
MR-35	54	55									Broken core
MR-35	55	56									
MR-35	56	57									
MR-35	57	58									
MR-35	58	59									
MR-35	59	60									3cm pebble lag/coglomerate sits above coarse beds and below finner grained beds
MR-35	60	61									
MR-35	61	62									
MR-35	62	63									
MR-35	63	64									
MR-35	64	65									
MR-35	65	66									
MR-35	66	67		fr	20	qo	2				

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark- ness	Colour	Pattern	IC Friab.	IC Silc.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro- carbon Type	Hydro- carbon Distrib.
MR-35	67	68	88	tm	m	P	Ld	c	w	f	m	c	9	2	0	0	0					1	s		Sr					
MR-35	68	69	100	tm	p	P	Lr	c	w	f	m	vc	11	2	0	0	0			Bn	d	4		G1	Sr					
MR-35	69	70	100	tm	m	P	Lr	c	w	f	m	m	8	1	0	0	0					9			Sr					
MR-35	70	71	100	tm	m	P	Ld	c	w	f	f	m	1	0	0	0	0	w	1.2			4				Fr				
MR-35	71	72	100	tm	p	C	Lr	c	w	f	f	m	1	0	0	0	0			Bn	d	4				Fr				
MR-35	72	73	89	t	m	P	Lr	c	w	f	f	m	1	0	0	0	0	p	0.4	Bn	d	5				Fm;Fr				
MR-35	73	74	64	t	d	P,Pu	Ld	c	w	f	f	m	1	0	0	0	0	g	0.2	Bn	d	2				Fm				
MR-35	74	75	100	t	m	P	Ld	c	w	f	f	m	1	0	1	0	0	p	1	Bn	d	5				Fr;Fm				
MR-35	75	76	100	t	p	P	Lr	c	m	f	m	m	1	0	0	0	0	g	0.2			3			Sr;Sx					
MR-35	76	77	95	t	p	P	Lr	c	w	f	f	m	1	0	0	0	0					5				Fm;Fr				
MR-35	77	78	100	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0	g	0.2			5			Sr	Fm				
MR-35	78	79	100	t	m	P	Ld	c	w	f	m	m	1	0	0	0	0					18			Sr	Fm				
MR-35	79	80	99	t	m	P	Ld	c	w	f	f	m	1	0	0	0	0					16				Fr				
MR-35	80	81	100	t	m	P	Ld	c	w	f	m	m	1	0	0	0	0	g	0.4	Bn	d	7			Sr					
MR-35	81	82	98	t	p	P	Lr	c	w	f	f	m	1	0	0	0	0			Bn	d	50				F?;Fr				
MR-35	82	83	65	t	p	P	Lr	c	w	f	f	m	1	0	0	0	0	p	0.3	Bn	d	5				Fr				
MR-35	83	84	100	t	m	P	Lr	c	w	f	m	m	1	0	0	0	0					10			Sr					
MR-35	84	85	100	t	m	P	Lr	c	w	f	f	m	1	0	0	0	0	p	0.1			8				Fr;Fm				
MR-35	85	86	87	t	m	P	Lr	c	w	f	f	m	2	0	0	0	0	g	0.4			4			Sr	Fm				
MR-35	86	87	100	t	m	P	Lr	c	w	f	f	m	1	0	0	0	0	p	0.5			5				Fr;Fm				
MR-35	87	88	100	t	m	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0			Bn	d	3			Sr	Fm				
MR-35	88	89	97	t	m	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0	g	0.5	Bn	d	2			Sr					
MR-35	89	90	100	t	m	P	Ld	c	w	f	f	m	1	0	0	0	0			Bn	d	2				Fr				
MR-35	90	91	100	t	m	P	Ld	c	w	f	m	m	1	0	0	0	0	g	0.4	Bn	d	2			Sr					
MR-35	91	92	100	t	m	P	Ld	c	w	f	m	m	1	0	0	0	0	g	0.2	Bn	d	5			Sr					
MR-35	92	93	100	t	m	P	Ld	c	w	f	m	m	1	0	0	0	0			Bn	d	4			Sr					
MR-35	93	94	100	t	m	P	Ld	c	w	f	m	m	1	0	0	0	0			Bn	d	3			Sr	Fm				
MR-35	94	95	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0			Bn	d	2			Sr					
MR-35	95	96	100	t	m	P	Ld	c	w	f	m	m	1	0	0	0	0			Bn	d	3			Sr	Fm				
MR-35	96	97	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0			Bn	d	4			Sr;Sm					
MR-35	97	98	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.2			4			Sr					
MR-35	98	99	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0								Sr					
MR-35	99	100	100	t	m	C	Lr	c	w	f	f	m	1	0	0	0	0	d	0.4	Bn	d	1				Fr				
MR-35	100	101	97	t	m	P	Lr	c	w	f	f	m	1	0	0	0	0	p	0.1	Bn	d	1				Fr;Fm				
MR-35	101	102	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0			Bn	d	1			Sr					
MR-35	102	103	100	t	p	C	Sd	c	w	f	m	m	1	0	0	0	0	p	0.1	Bn	d	1			Sr					
MR-35	103	104	100	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.1			2			Sr					
MR-35	104	105	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0	g	0.1	Bn	d	3			Sr;Sm					
MR-35	105	106	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.1			5			Sr;Sm					
MR-35	106	107	100	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0			Bn	d	4				Fr;Fm				
MR-35	107	108	86	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0	w	0.4			4			Sr					
MR-35	108	109	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0			Bn	d	3			Sr					
MR-35	109	110	97	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.4	Bn	d	4			Sr					
MR-35	110	111	100	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0					3			Sr					
MR-35	111	112	100	t	p	P	U	c	w	f	m	m	1	0	0	4	0	d	0.1	Bn	d	1			Sr	Fh				
MR-35	112	113	99	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.3			5			Sr					
MR-35	113	114	100	tm	p	P	Lr	c	s	f	m	m	1	0	0	0	0	d	0.3			12			Sr					
MR-35	114	115	100	t	p	P	Sd	c	w	f	m	m	1	0	0	0	0					4			Sr	Fm				
MR-35	115	116	97	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.1	Bn	d	2			Sr	Fm				
MR-35	116	117	100	tm	p	C	Ld	c	w	f	m	m	1	0	0	0	0	d	0.7	Bn	d	3			Sr					
MR-35	117	118	100	t	p	C	U	c	w	f	m	m	1	0	0	0	0			Bn	d	3			Sr					
MR-35	118	119	40	tm	m	C	Lr	c	w	f	m	m	1	0	0	0	0					1			Sr;Sm					
MR-35	119	120	94	t	m	P	Lr	c	w	f	m	m	1	0	0	0	0			Bk	d	4			Sm;Sr					
MR-35	120	121	100	t	m	P	Lr	c	w	f	m	m	1	0	0	0	0			Bn	d	2			Sr;Sm					
MR-35	121	122	100	t	m	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2	Bn	d	3			Sr;Sm					
MR-35	122	123	100	t	m	P	Lr	c	w	f	m	m	1	0	0	0	0	d	0.1	Bn	d	4			Sr;Sm					
MR-35	123	124	100	tm	m	C	Lr	c	w	f	m	m	1	0	0	0	0			Bn	d	5			Sr					
MR-35	124	125	98	t	p	C	U	c	w	f	m	m	1	0	0	0	0	p	0.2			5			Sr;Sm					
MR-35	125	126	100	t	p	P	U	c	w	f	m	m	1	0	0	0	0					1			Sr					
MR-35	126	127	100	t	p	C	U	c	w	f	m	m	1	0	0	0	0					5			Sr					
MR-35	127	128	100	t	p	C	U	c	w	f	m	m	1	0	0	0	0					8			Sr					
MR-35	128	129	100	t	p	P	U	c	w	f	m	m	1	0	0	0	0	d	0.3	Bn	d	3			Sr					
MR-35	129	130	100	t	p	C	Ld	c	w	f	m	m	1	0	0	0	0	d	0.4	Bn	d	3			Sr;Sm					
MR-35	130	131	100	t	p	C	Ld	c	w	f	m	m	1	0	0	0	0			Bn	d	3			Sr					

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-35	67	68									
MR-35	68	69									LzL/MF contact = pebble lag at 68.4m
MR-35	69	70									Last pebble at 69.11m = could be LzL/MF contact?
MR-35	70	71									
MR-35	71	72									
MR-35	72	73									
MR-35	73	74									
MR-35	74	75									
MR-35	75	76		ft	40	qo	100				Silicified fault zone
MR-35	76	77		fr	10	qo	15				
MR-35	77	78		fd;fr	20;40	y,py	1;1				
MR-35	78	79		fr	40	py	1				
MR-35	79	80		ft	10	py	6				large faul has pyrite growth in it - grown in columns
MR-35	80	81		ft	20	py	5				
MR-35	81	82		bx		py	450				Brecciated zone in filled by pyrite
MR-35	82	83									
MR-35	83	84		fr	40	py	1				
MR-35	84	85		fr;ft	40;20	py;sd	1;1				
MR-35	85	86									
MR-35	86	87									
MR-35	87	88		fr	30	py					
MR-35	88	89									
MR-35	89	90									
MR-35	90	91									
MR-35	91	92									
MR-35	92	93									
MR-35	93	94									
MR-35	94	95									
MR-35	95	96		fr	20	py	1				
MR-35	96	97									
MR-35	97	98									
MR-35	98	99									
MR-35	99	100									
MR-35	100	101									
MR-35	101	102									
MR-35	102	103									
MR-35	103	104		fs	20	n	0				
MR-35	104	105									
MR-35	105	106									
MR-35	106	107									
MR-35	107	108									
MR-35	108	109									
MR-35	109	110									
MR-35	110	111		ft	40	qo	1				
MR-35	111	112									
MR-35	112	113									
MR-35	113	114		ft;fr	10;30	qo,py	80;1				Silicified fault zone
MR-35	114	115									
MR-35	115	116									
MR-35	116	117									
MR-35	117	118									
MR-35	118	119									Missing core
MR-35	119	120									
MR-35	120	121									
MR-35	121	122									
MR-35	122	123									
MR-35	123	124									
MR-35	124	125									
MR-35	125	126									
MR-35	126	127									
MR-35	127	128									
MR-35	128	129									
MR-35	129	130									
MR-35	130	131									

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Darkness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-35	131	132	100	t	p	P	Ld	c	w	f	m	m	1	0	0	0	0					4			Sm;Sr					
MR-35	132	133	100	tm	p	C	Ld	c	w	f	m	m	1	0	0	0	0	d	0.1	Bn	d	5			Sr					
MR-35	133	134	85	t	m	C	Ld	c	w	f	m	m	1	0	0	0	0	p	0.2	Bn	d	2			Sr;Sm					
MR-35	134	135	100	tm	m	C	Lr	c	w	f	m	m	1	0	0	0	0			Bn	d	2			Sr					
MR-35	135	136	100	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0			Bn	d	3			Sm;Sr					
MR-35	136	137	100	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	p	0.2			4			Sr					
MR-35	137	138	100	t	p	P	U	c	w	f	m	m	1	0	0	0	0	p	0.2	Bn	d	3			Sr					
MR-35	138	139	100	t	p	C	U	c	w	f	m	m	1	0	0	0	0					2			Sr					
MR-35	139	140	96	t	p	P	U	c	w	f	m	m	1	0	0	0	0					4			Sr;Sm					
MR-35	140	141	100	a	m	P	Ld	c	w	f	m	m	1	0	0	0	0	p	0.3			3			Sr					
MR-35	141	142	100	t	m	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	d	0.1	Bn	d	4			Sr					
MR-35	142	143	98	tm	m	P	Ld	c	w	f	m	m	1	0	0	0	0	d	0.5	Bn	d	3			Sr					
MR-35	143	144	100	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0					5			Sr;Sm					
MR-35	144	145	100	t	p	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0					6			Sr					
MR-35	145	146	95	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.1			6			Sr	Fm				
MR-35	146	147	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					5			Sr					
MR-35	147	148	90	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	d	0.3			12			Sm					
MR-35	148	149	40	t	p	C	U	c	w	f	m	m	1	0	0	0	0					10			Sm					
MR-35	149	150	98	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2			13			Sr;Sm					
MR-35	150	151	97	t	p	P	Sd	c	w	f	m	m	1	0	0	0	0	g	0.2			10			Sr					
MR-35	151	152	90	t	p	P	Ld	c	w	f	m	m	1	0	0	0	0	w	0.5			15			Sr					
MR-35	152	153	99	t	p	C	Ld	c	w	f	m	m	1	0	0	0	0	d	0.4			8			Sr;Sx					
MR-35	153	154	98	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					20			Sr;Sx					
MR-35	154	155	80	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					20			Sm					
MR-35	155	156	100	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0	g	0.3			15			Sr					
MR-35	156	157	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					15			Sx					
MR-35	157	158	97	t	m	P,M	M	c	w	f	m	m	1	0	0	0	0	d	1			8			Sx;Sm					
MR-35	158	159	97	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0					12			Sr					
MR-35	159	160	97	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					17			Sx;Sr					
MR-35	160	161	75	t	p	P,M	Ppd	c	w	f	m	m	1	0	0	0	0	w	1.2			12			Sx					
MR-35	161	162	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					12			Sr;Sx					
MR-35	162	163	100	t	p	C	Lr	c	w	f	m	m	3	1	0	0	0					13			Sr					
MR-35	163	164	100	tm	p	C	Lr	c	w	f	m	m	2	0	0	0	0					5			Sr					
MR-35	164	165	100	tm	m	C	Ld	c	m	f	m	m	4	4	1	0	0	p	0.3			6			Sr;Sm					
MR-35	165	166	100	t	m	C	Ld	c	w	f	m	m	2	0	0	0	0	d	0.2			4			Sr					
MR-35	166	167	98	tm	m	P	Lr	c	w	f	m	m	3	1	0	0	0			Bn	d	10			Sr					
MR-35	167	168	100	tm	m	P	Ld	c	m	f	m	m	2	0	0	0	0			Bn	d	7			Sr					
MR-35	168	169	100	tm	m	P	Lr	c	w	f	m	m	2	0	0	0	0	w	0.7			10			Sr					
MR-35	169	170	99	t	p	C	Lr	c	w	f	m	m	2	0	0	0	0	d	0.1			7			Sr					
MR-35	170	171	100	tm	m	P	Lr	c	w	f	m	m	2	0	1	0	0	w	0.7			2			Sr;Sm		Mh			
MR-35	171	172	100	tm	m	P	Lr	c	w	f	m	c	2	0	0	0	0			Bn	d	12			Sr					
MR-35	172	173	94	tm	p	P	Lr	c	w	f	m	c	2	0	0	1	0	g	0.4			9			Sr		Mh			
MR-35	173	174	100	tm	m	C	Lr	c	w	f	m	c	2	0	0	0	0	w	0.6	Bn	d	8			Sr					
MR-35	174	175	100	tm	p	P	Lr	c	w	f	m	m	2	0	0	0	0	p	0.1	Bn	d	8			Sr					
MR-35	175	176	100	tm	m	P	Ld	c	w	f	m	m	4	1	0	0	0	w	0.7			7			Sr;Sl					
MR-35	176	177	100	tm	m	P	Lr	c	w	f	m	m	1	0	0	0	0	d	0.2			9			Sr	Fm				
MR-35	177	178	100	tm	m	P	Lr	c	w	f	m	g	6	3	0	0	0	d	2			5			Sr	Fr		Pm		
MR-35	178	179	90	tm	m	C	Lr	c	w	vf	m	g	7	4	0	7	0			Bn	d	3			Sr	Fr	Mh	Pm		
MR-35	179	180	100	tm	m	P	Lr	c	w	f	m	vc	5	2	0	0	0	g	0.4	Bn	d	12								
MR-35	180	181	100	tm	m	C	Lr	c	w	f	m	vc	5	2	0	0	0			Bk	d	12			Sr			Pm		
MR-35	181	182	90	tm	m	C	Lr	c	w	f	m	m	1	0	0	0	0					20			Sr					
MR-35	182	183	100	tm	m	C	Lr	c	m	f	m	g	6	3	0	2	0	w	0.5	Bn	d	8			Sr		Mh	Pm		
MR-35	183	184	100	tm	p	C	Lr	c	w	f	m	c	2	0	0	4	0	d	0.8			7			Sr		Mh			
MR-35	184	185	99	tm	m	P	Lr	c	w	f	m	c	3	1	0	0	0	p	0.6	Bn	d	4			Sr					
MR-35	185	186	100	tm	m	C	Lr	c	w	f	m	m	2	0	0	0	0			Bn	d	7			Sr	Fr				
MR-35	186	187	100	tm	m	P	Lr	c	w	f	m	c	4	1	0	0	0	w	1.3			3			Sr					
MR-35	187	188	100	tm	m	P	Lr	c	m	f	m	m	1	0	0	0	0	p	0.2			5			Sr;Sl					
MR-35	188	189	100	tm	m	P	Lr	c	w	f	m	c	2	0	0	0	0					3			Sl;Sr					
MR-35	189	190	100	tm	p	P	U	c	m	f	f	m	1	0	0	0	0					6			Sr	Fl				
MR-35	190	191	97	tm	p	P	U	c	m	f	m	m	1	0	0	0	0					10			Sl					
MR-35	191	192	100	mt	p	P,C	B	c	w	f	f	vc	16	4	0	0	0					5			Sm	Fm,Fr				
MR-35	192	193	100	m	p	P,C	B	c	w	f	c	vc	12	3	0	0	0					12			Sm	Fm				
MR-35	193	194	98	a	p	P	Lr	c	w	m	c	c	8	1	0	0	0					8			Sm					
MR-35	194	195	100	a	p	C	Lr	c	w	m	c	vc	9	3	0	0	0					4			Sm					

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-35	131	132									
MR-35	132	133									
MR-35	133	134									
MR-35	134	135									
MR-35	135	136									
MR-35	136	137									
MR-35	137	138									
MR-35	138	139									
MR-35	139	140									
MR-35	140	141									
MR-35	141	142									
MR-35	142	143									
MR-35	143	144									
MR-35	144	145									
MR-35	145	146		fr	60	qd	1				
MR-35	146	147									
MR-35	147	148									Broken core
MR-35	148	149									Broken and missing core
MR-35	149	150		b	80	qd	1				
MR-35	150	151		fr	60	qd	1				
MR-35	151	152		fr	50	qd	1				
MR-35	152	153		fr	30	qd	1				Almost vertical bedding
MR-35	153	154		fr	40	qd	1				Almost vertical bedding; core broken and fractures filled with drusy quartz
MR-35	154	155		fr;fr	40;20	qd;qd	1;1				Broken core
MR-35	155	156		fr	30	qd	1				Broken core
MR-35	156	157		fr	80	qd	1				See vertical bedding, broken core
MR-35	157	158									Near vertical bedding
MR-35	158	159									Broken core
MR-35	159	160									near vertical bedding, Broken core
MR-35	160	161		fr	20	qo	2				near vertical bedding, broken core
MR-35	161	162		fr	20	y	1				
MR-35	162	163									
MR-35	163	164									
MR-35	164	165		ft;ft	30;30	qo;qo	9;9				
MR-35	165	166									
MR-35	166	167		ft	60	y	14				
MR-35	167	168		ft;ft	50;40	y;y	60;40				
MR-35	168	169		ft;fr	30;40	su;qd	8;1				
MR-35	169	170									
MR-35	170	171		fd	30	y	1				
MR-35	171	172									
MR-35	172	173		ft	30	y	3				
MR-35	173	174									
MR-35	174	175									
MR-35	175	176									
MR-35	176	177									
MR-35	177	178									Fine gr beds alternating with med beds containing granules
MR-35	178	179									
MR-35	179	180									Broken core
MR-35	180	181		fr	20	py	1				Broken core
MR-35	181	182		ft	40	su	60				Broken core
MR-35	182	183		ft;ft	60;40	y;qo	40;70				Silicified fault zone
MR-35	183	184									
MR-35	184	185		fr	30	y	1				
MR-35	185	186									
MR-35	186	187									
MR-35	187	188		ft	30	qo	10				
MR-35	188	189		ft	20	y	2				
MR-35	189	190		ft;ft	20;20	y;qo	10;80				
MR-35	190	191		ft;ft	40;10	su;qo	40;50				
MR-35	191	192									2 large FP rip up clasts- 34cm and 12cm clasts - so MTG=340mm?, clasts sit on fined gr MF
MR-35	192	193		ft	30	o	400				MF-FP contact at 192.05m, sharp and angled, contains a faulted section of MF from 192.6m to 193m - MF has massive bedding and many clay fractures
MR-35	193	194		ft	20	y	25				
MR-35	194	195									

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-35	195	196	96	a	p	C	U	c	w	m	c	c	2	0	0	0	0					6			Sm					
MR-35	196	197	100	a	p	C	Lr	c	w	m	c	c	26	1	0	0	0					3			Sl					
MR-35	197	198	100	a	p	C	U	c	w	m	c	vc	12	1	0	0	0					5			Sl					
MR-35	198	199	100	a	m	C	Ld	c	w	m	c	vc	20	3	0	0	0					5			Sl					
MR-35	199	200	100	a	p	C	Lr	c	w	m	c	vc	8	1	1	0	0					2			Sl		Mn			
MR-35	200	201	100	a	m	P,Pu	M	c	w	m	c	vc	8	2	0	0	0					2			S?					
MR-35	201	202	80	a	m	P,M	M	c	w	m	c	g	14	6	0	0	4					2		Gm	Sm					
MR-35	202	203	68	a	m	C,M	M	c	w	m	c	vc	5	2	0	0	0					6			Sl					
MR-35	203	204	55	a	p	C,M	Lr	c	w	m	c	vc	12	2	0	0	0					5			S?					
MR-35	204	205	48	a	m	M,C	M	c	w	m	c	c	3	1	0	0	0					1			Sm					
MR-35	205	206	94	a	m	P,Pu	M	c	w	m	c	c	5	1	0	0	0					8			S?					
MR-35	206	207	98	a	m	P,M	M	c	w	m	c	g	31	5	0	3	0	w	2.3			3			Sm					
MR-35	207	208	74	a	p	P	U	c	w	m	c	vc	30	3	0	0	0	w	1.3			8			S?					
MR-35	208	209	99	a	m	P,M	M	c	w	m	c	c	39	4	0	0	0					6			Sl;Sm					
MR-35	209	210	100	a	p	P	U	c	w	m	c	c	27	2	0	0	0					4			S?;Sm					
MR-35	210	211	100	a	p	C,Pu	M	c	w	m	c	c	27	4	0	0	0	w	0.5			1			Sm					
MR-35	211	212	96	a	p	C,Pu	M	c	w	m	m	g	17	55	8	0	0					2			S?			Pm		
MR-35	212	213	100	a	m	P,M	M	c	w	m	c	vc	24	6	0	0	0					3			Sm					
MR-35	213	214	100	a	m	C,M	M	c	w	m	c	pl	36	32	0	0	19					5		Gm	Sm			Pm		
MR-35	214	215	99	a	m	P,M	M	c	w	m	c	pm	48	28	0	0	0					3			Sm			Pm		
MR-35	215	216	100	a	m	P,M	M	c	w	m	c	pm	38	14	0	0	0	w	1			3			Sm			Pm		
MR-35	216	217	100	a	d	Pu,P	M	c	w	m	c	g	20	4	0	0	0					1			Sm					
MR-35	217	218	98	a	d	M,Pu,P	M	c	w	m	c	ps	42	22	0	0	0					3			Sm			Pm		
MR-35	218	219	100	a	m	P,M	M	c	w	m	c	ps	40	22	0	0	16					3		Gm	S?					
MR-35	219	220	100	a	p	P	U	c	w	m	c	ps	33	12	0	0	0					3			Sl			Pm		
MR-35	220	221	95	a	p	P	U	c	w	m	c	g	55	6	0	0	0					4			Sl			Pm		
MR-35	221	222	100	a	m	C,M	M	c	s	m	c	g	50	12	0	0	0					3			Sm			Pm		
MR-35	223	224	68	a	p	C,R	M	c	w	m	c	ps	18	8	0	0	0					6			Sm			Pm		
MR-35	224	225	100	a	p	C,R,Gn	M	c	w	m	c	c	14	4	0	0	0					6			Sm					
MR-35	225	226	100	a	p	C,Pu,Gn	M	c	w	m	c	ps	40	12	0	0	5					3		Gm	Sm			Pm		
MR-35	226	227	100	a	p	C,Pu,Gn	M	c	w	m	c	ps	18	15	0	0	9					3		Gm	Sm			Pm		
MR-35	227	228	100	a	p	C,Gn	Ppd	v	w	m	c	g	38	10	0	0	0					5			Sl					
MR-35	228	229	100	a	p	P,Gn	M	c	w	m	c	g	90	18	0	0	0					3			Sm			Pm		
MR-35	229	230	99	a	p	C,Gn	Lr	c	w	m	c	g	14	9	0	0	0					4			Sm					
MR-35	230	231	100	a	p	C,Gn	Ld	c	w	m	c	ps	35	10	0	0	0					5			S?					
MR-35	231	232	99	a	m	C,Gn,Pu	M	c	w	m	c	g	37	10	0	0	0					3			S?					
MR-35	232	233	100	a	m	C,Gn,Pu	M	f	w	m	c	ps	31	16	0	0	0					5			Sm			Pm		
MR-35	233	234	100	a	m	C,Gn,Pu	M	f	w	m	c	ps	52	34	0	0	26					3		Gm	Sm			Pm		
MR-35	234	235	100	a	m	R,Pu,Gn	M	f	w	m	c	g	24	8	0	1	0					5			Sm			Pm		
MR-35	235	236	100	a	m	C,Gn,P	M,Lr	f	w	m	c	g	43	13	0	0	3					7		Gm	S?			Pm		
MR-35	236	237	100	a	m	Pu,Gn,C	M	c	w	m	vc	pm	66	42	0	0	36					2		Gm	S?					
MR-35	237	238	100	a	m	C,Gn,Pu	M,Lr	c	w	m	c	ps	38	29	0	0	20	w	0.8			5		Gm	Sm			Pm		
MR-35	238	239	97	a	m	C,Gn,Pu	M	c	w	m	c	g	130	11	0	0	8					3		Gm	S?					
MR-35	239	240	20	a	m	C,Gn,Pu	M	c	w	m	c	g	60	7	0	0	6					1		Gm	S?					
MR-39	34	35	40	t	p	P	Lr	c	m	vf	m	f	4	0.5	0	0	0	n		BkL		0	n		Sr				p	f
MR-39	35	36	80	t	p	P	Lr	c	m	vf	m	f	1	0	0	0	0	n		BkL		2	n		Sr				p	f
MR-39	36	37	98	t	p	P	Lr	c	m	vf	m	m	2	0	0	0	0	n		BkL		0	n		Sr				p	i
MR-39	37	38	100	t	p	P	Lr	c	m	f	m	c	3	1	0	0	0	n		BkL		1	s		Sr				p	i;f
MR-39	38	39	98	t	p	P	Lr	c	m	f	m	c	6	0.5	0	0	0	n		BkL		2	n		Sm				p	i;f
MR-39	39	40	98	t	p	P	Lr	c	m	vf	m	m	6	0.5	0	0	0	n		BkL		1	n		Sr				p	i
MR-39	40	41	97	t	p	P,Y	Lr	c	m	vf	m	c	3	0.5	0	0	0	n		BkL		3	r		Sr				p	n
MR-39	41	42	97	t	p	P,Y	LrSr	c	m	vf	m	c	3	1	0	0	0	n		Bk	d	6	n		Sr				p	i
MR-39	42	43	100	t	p	P,Y	LrSr	c	m	vf	m	vc	13	3	0	0	0	n		Bk	d	2	r	G1	Sr				p	f
MR-39	43	44	95	t	p	C	LrSr	c	m	f	m	vc	4	1	0	0	0	n		Bk	d	3	n		Sr				p	i;f
MR-39	44	45	98	t	p	C,Y	LrSrMy	c	m	vf	m	c	3	0.5	0	0	0	n		Bk	d	1	s		Sr				p	i
MR-39	45	46	98	t	p	C,Y	LrSrMy	c	m	f	m	c	5	0.5	0	0	0	n		Bk	d	0	n	Gl	Sr				p	i
MR-39	46	47	100	t	p	C,Y	LrSrMy	c	m	f	m	vc	10	3	0	0	0	n		Bk	d	3	s;r		Sr				n	n
MR-39	47	48	100	t	p	P	Lr	c	m	f	m	vc	5	0.5	0	0	0	n		n		1	n		Sr				n	n
MR-39	48	49	100	t	p	P	Lr	c	m	f	m	vc	14	3	0	0	0	n		n		4	n		Sr				p	i;f
MR-39	49	50	100	t	p	P	Lr	c	m	f	m	vc	20	2	0	0	0	n		n		0	s		Sr				p	i
MR-39	50	51	97	t	p	P	Lr	c	m	m	c	g	10	6	0	0	0	n		n		0	n		Sr				p	i
MR-39	51	52	100	t	p	P	Lr	c	m	f	m	g	16	7	0	0	0	n		n		0	s		Sr				n	n
MR-39	52	53	90	m	m	P	Bpu	c	m	s	vf	f	1	0	0	0	0	n		n		0	n		Sr				n	n
MR-39	53	54	97	t	m	P	BrLpu	c	m	vf	m	c	10	3	0	0	0	n		n		4	r	G1	Sr				p	i

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-35	195	196		ft	20	sc	300				Fault may contain some MF - f-med pink coloured ss
MR-35	196	197									
MR-35	197	198		fr	20	qd	1				
MR-35	198	199		ft	20	y	4				
MR-35	199	200		fr	30	s	1				
MR-35	200	201		fr	20	y	1				
MR-35	201	202									Missing core
MR-35	202	203		ft;ft	25;20	qo;su	10,12				Missing core
MR-35	203	204									Missing core
MR-35	204	205									Missing core
MR-35	205	206		ft;ft	30;20	y;y	2;1				
MR-35	206	207									Intraclasts are pink
MR-35	207	208									Missing core
MR-35	208	209		fr	40	qd	1				
MR-35	209	210		ft	20	su	6				
MR-35	210	211									
MR-35	211	212									
MR-35	212	213									
MR-35	213	214		fr	20	y	1				
MR-35	214	215									
MR-35	215	216		ft	20	su	10				
MR-35	216	217									
MR-35	217	218		ft	20	su	12				
MR-35	218	219		ft	5	y	1				
MR-35	219	220		ft	30	y	10				
MR-35	220	221									
MR-35	221	222									Silicified zone
MR-35	223	224		ft	20	y	1				
MR-35	224	225		ft	20	su	16				
MR-35	225	226		ft	30	su	15				
MR-35	226	227									
MR-35	227	228									Very chloritized
MR-35	228	229									
MR-35	229	230									
MR-35	230	231									
MR-35	231	232									40cm chlorite section
MR-35	232	233		ft	10	y	1				
MR-35	233	234									
MR-35	234	235						ms	y	23	Green coloured replaced clay
MR-35	235	236						fi;fo	y;y	21;12	Replacement zones completely altered to clay
MR-35	236	237									Base is large conglomerate bed
MR-35	237	238									
MR-35	238	239									Conglom at base containing 13cm qtz clast
MR-35	239	240									FP/basement contact at 239.2m, sharp and angled at 40 degrees, med-c gr draping above contact then conglom sitting above
MR-39	34	35 1		n	0		0				
MR-39	35	36 1		fr	0		0				fromboital pyrite along fracture
MR-39	36	37 1		n	0		0				laminated dark mineral
MR-39	37	38 1		fr	0		0				10% heavy mineral bands
MR-39	38	39 5		fr	0		0				laminated dark mineral
MR-39	39	40 2		fr	0		0				
MR-39	40	41 0		fr	0		0				bitumen & fromboidal pyrite in same frac.
MR-39	41	42 1		fr	0		0				bleached along frac., frac. disrupts bedding
MR-39	42	43 0		fr	0		0				beginning of pebble beds, pebbles are mainly qtz
MR-39	43	44 1		fr	0		0				fromboital pyrite along fracture, 10% broken core with clay rich fract.
MR-39	44	45 1		fr	0		0				
MR-39	45	46 1		n	0		0				
MR-39	46	47 0		fr	0		0				pebbles now qtz & rock frag., larger pebble band, hem. rich band
MR-39	47	48 0		fr	0		0				x-beds stand out
MR-39	48	49 1		fr	0		0				beginning of vc beds
MR-39	49	50 3		n	0		0				coarser beds more disrupted, pyrob. conc. in coarser beds
MR-39	50	51 8		n	0		0				massive pebble beds
MR-39	51	52 0		n	0		0				massive pebble beds
MR-39	52	53		n	0		0				vf bed with clay seams along, possible silt bed (70%)
MR-39	53	54 1		fr	0		0				clay filled frac.

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-39	54	55	97	t	m	P	BrLpu	c	m	f	m	vc	10	8	0	0	0	n		Bk	l	0	n	G1;Gl	Sr				p	i
MR-39	55	56	97	t	m	P	BpuLr	c	m	f	m	vc	23	6	0	0	0	n		Bk	l	2	r	Gl	Sr				n	n
MR-39	56	57	99	m	p	P	Lp	c	m	f	m	vc	8	3	0	0	0	n		n		0	n		Sr				n	n
MR-39	57	58	100	m	m	C	Bpu	c	m	vf	f	m	1	0	0	2.5	0	n		n		4	n		Sr				n	n
MR-39	58	59	90	m	p	C	Lr	c	m	vf	m	c	1	0	0	0	0	w	0.8	n		2	n		Sr				n	n
MR-39	59	60	98	m	p	C	Lr	c	m	vf	m	m	1	0	0	0	0	p	0.2	n		1	n		Sr				n	n
MR-39	60	61	100	t	p	P	Lr	c	m	vf	m	m	1	0	0	0	0	g	0.4	n		0	n		Sr;Sm				n	n
MR-39	61	62	100	m	p	P	Lr	c	m	f	m	m	1	0	0	0	0	d	1	Bk	l	2	n		Sr;Sm				n	n
MR-39	62	63	98	m	p	P	Lr	c	m	vf	m	m	1	0	0	0	0	d	0.9	n		4	s		Sr				n	n
MR-39	63	64	100	m	p	P	LrSr	c	m	f	m	m	1	0	0	0	0	d	0.7	Bk	d	3	n		Sr;Sm				n	n
MR-39	64	65	97	m	p	P	Lr	c	m	vf	m	c	1	0	0	0	0	g	0.5	Bk	d	4	r		Sr				n	n
MR-39	65	66	55	t	p	P	Lr	c	m	vf	m	m	1	0	0	0	0	p	0.2	n		6	r		Sr				n	n
MR-39	66	67	93	t	p	P	LrSr	c	m	vf	m	c	1	0	0	0	0	g	0.1	n		5	n		Sr				p	f
MR-39	67	68	100	t	p	P	Lr	c	m	f	m	c	1	0	0	0	0	p	0.2	n		4	n		Sr				p	f
MR-39	68	69	100	t	p	P	Lr	c	m	f	m	m	1	0	0	0	0	g	0.1	n		2	n		Sr				n	n
MR-39	69	70	100	m	p	P	Lr	c	m	f	m	m	1	0	0	0	0	p	0.1	Bk	d	3			Sm			Pr	n	n
MR-39	70	71	93	m	p	C	U	f	w	y	m	pc	1	0	0	0	0	n		n		2	d		Sr				p	f
MR-39	71	72	98	m	p	C	Mr	f	w	y	m	m	1	0	0	0	0	n		Bk	d	27	n		Sr				p	f
MR-39	72	73	95	m	p	C	Lr	e	w	vf	m	c	1	0	0	0	0	d	0.5	Bk	d	18	n		Sr				p	f
MR-39	73	74	96	m	p	C	Lr	f	w	f	m	m	1	0	0	0	0	d	0.3	n		10	n		Sm				n	n
MR-39	74	75	99	m	p	C	U	e	w	f	m	c	1	0	0	0	0	n		n		18	n		Sr				p	f
MR-39	75	76	96	t	p	C	U	c	w	vf	m	m	1	0	0	0	0	p	0.2	n		5	n		Sr				n	n
MR-39	76	77	90	t	p	C	U	e	w	f	m	m	1	0	0	0	0	n		Bk	d	13	s		Sr				p	f
MR-39	77	78	100	t	p	C	Lp	c	w	f	m	c	1	0	0	0	0	p	0.9	n		18	r		Sr;Sm				n	n
MR-39	78	79	65	t	p	C	U	c	m	f	m	c	1	0	0	0	0	d	1	n		2	n		Sr				n	n
MR-39	79	80	50	t	p	C	U	c	m	f	m	c	1	0	0	0	0	n		n		2	n		Sr				n	n
MR-39	80	81	90	t	p	C	Lp	c	m	vf	m	c	1	0	0	0	0	d	1	n		2	n		Sr				n	n
MR-39	81	82	94	m	p	C	U	e	m	f	m	c	1	0	0	0	0	n		n		30	n		Sr				n	n
MR-39	82	83	96	t	p	C	Lp	c	m	f	m	m	1	0	0	0	0	d	0.6	n		6	n		Sr				n	n
MR-39	83	84	98	t	p	P	Lp	c	m	vf	m	m	1	0	0	0	0	g	0.5	n		3	n		Sr				n	n
MR-39	84	85	98	t	p	P	Lp	c	m	f	m	m	1	0	0	0	0	n		n		6	n		Sr				n	n
MR-39	85	86	98	t	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n		Bk	d	3	n		Sr				n	n
MR-39	86	87	98	t	p	P	LrSr	c	m	f	m	m	1	0	0	0	0	d	0.4	n		2	r		Sr				n	n
MR-39	87	88	100	t	p	P	LrSr	c	m	vf	m	m	1	0	0	0	0	p	0.7	Bk	d	7	n		Sm				n	n
MR-39	88	89	99	t	p	P	LrSr	c	m	f	m	m	1	0	0	0	0	p	0.1	Bk	d	2	n		Sm				n	n
MR-39	89	90	97	m	p	P	Lr	c	w	f	c	vc	1	0	0	0	0	n		n		4	n		Sr				n	n
MR-39	90	91	98	m	p	P	Lr	c	w	f	m	c	1	0	0	0	0	w	0.9	n		3	n		Sr				n	n
MR-39	91	92	93	m	p	P	Lr	c	w	f	m	c	1	0	0	0	0	w	1	n		2	n		Sr				n	n
MR-39	92	93	97	m	p	P	Lr	c	w	f	m	c	1	0	0	0	0	n		Bn	d	1	n		Sr				n	n
MR-39	93	94	100	m	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n		Bn	d	0	n		Sr				n	n
MR-39	94	95	97	t	p	C	Lp	c	m	f	m	m	1	0	0	0	0	n		n		3	n		Sr;Sm				n	n
MR-39	95	96	98	t	p	C	U	c	m	f	m	c	1	0	0	0	0	d	0.3	n		0	n		Sr				n	n
MR-39	96	97	100	t	p	C	Lp	c	m	f	m	c	1	0	0	0	0	p	0.2	n		2	n		Sr				n	n
MR-39	97	98	100	t	p	C	Lp	c	m	f	m	m	1	0	0	0	0	n		n		4	r		Sr;Sm				n	n
MR-39	98	99	98	t	p	C	U	c	m	f	m	m	1	0	0	0	0	n		n		3	n		Sr;Sm				n	n
MR-39	99	100	98	t	p	C	Lp	c	m	f	m	c	1	0	0	0	0	n		Bk	d	5	n		Sr				n	n
MR-39	100	101	98	t	p	C	U	f	w	f	m	m	1	0	0	0	0	n		n		4	n		Sr				n	n
MR-39	101	102	94	t	p	C	Lp	c	w	f	m	c	1	0	0	0	0	n		n		4	n		Sr				n	n
MR-39	102	103	94	t	p	C	Lr	c	m	f	m	m	1	0	0	0	0	n		n		3	n		Sr			Pm	n	n
MR-39	103	104	95	t	p	C	Lp	c	m	f	m	m	1	0	0	0	0	d	0.2	Bk	d	2	n		Sr;Sm				n	n
MR-39	104	105	70	t	p	C	Lp	e	m	f	m	c	1	0	0	0	0	p	0.1	Bk	d	1	n		Sr;Sm				n	n
MR-39	105	106	90	t	p	C	Lp	e	m	f	m	m	1	0	0	0	0	n		Bk	d	30			Sr;Sm				n	n
MR-39	106	107	90	t	p	C	Lp	c	m	vf	m	m	1	0	0	0	0	n		Bk	d	5	n		Sr;Sm				p	f
MR-39	107	108	97	t	p	C	LpSp	c	s	vf	f	c	1	0	0	0	0	d	0.2	Bk	d	7	n		Sr				n	n
MR-39	108	109	97	t	p	C	Lp,pu	c	s	vf	m	m	1	0	0	0	0	n		Bk	d	5	n		Sr				p	f
MR-39	109	110	97	t	p	C	Lp	c	s	vf	f	m	1	0	0	0	0	n		n		5	n		Sr				p	f
MR-39	110	111	97	t	p	C	Lp	c	s	vf	m	m	1	0	0	0	0	n		Bk	d	6	n		Sr				p	f
MR-39	111	112	98	t	p	C	U	c	s	vf	f	c	1	0	0	0	0	n		n		5	r		Sr				p	f
MR-39	112	113	97	t	p	C	U	c	s	vf	m	m	1	0	0	0	0	d	0.1	n		3	r		Sr;Sm				p	f
MR-39	113	114	97	t	p	C	Lp	c	s	vf	f	m	1	0	0	0	0	d	0.3	n		5	n		Sr				p	f
MR-39	114	115	95	t	p	C	Lp	c	s	vf	m	m	1	0	0	0	0	d	1	n		6	n		Sr;Sm				p	f
MR-39	115	116	95	m	p	C	Lp	e	s	f	f	m	1	0	0	0	0	n		n		6	n		Sr				p	f
MR-39	116	117	95	m	p	C	Lp	c	m	f	m	c	1	0	0	0	0	n		n		6	n		Sr				p	f
MR-39	117	118	95	m	p	C	Lp	c	m	f	f	m	1	0	0	0	0	n		n		3	n		Sr;Sm				p	f

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-39	54	55	1	n	0		0				bleached area with 2 stylolites on either side
MR-39	55	56	0	fr	0		0				basal lag=contact (55.94m), sty. @ base of pebble bed
MR-39	56	57	0	n	0		0				loss of pebble beds @ 56.4m (possible contact?), bleached below the pebble beds
MR-39	57	58	0	fr	0		0				start to see more intraclasts
MR-39	58	59	0	fr	0		0				clay seams throughout
MR-39	59	60	0	fr	0		0				
MR-39	60	61	0	n	0		0				closed/bleached/clay filled? fract. along bedding (stylolites?)
MR-39	61	62	0	fr	0		0				pyrite & siderite? along open frac.,closed/bleached/clay filled? fract. along bedding (stylolites?)
MR-39	62	63	0	fr	0		0				
MR-39	63	64	0	fr	0		0				pyrite along open frac.
MR-39	64	65	0	fr	0		0				pyrite along open clay? frac.
MR-39	65	66	0	fr	0		0				
MR-39	66	67	1	fr	0		0				Siderite along a frac.
MR-39	67	68	0	fr	0		0				Siderite/pyrite along a frac.
MR-39	68	69	0	fr	0		0				Siderite along a frac.
MR-39	69	70	0	fr	0		0				
MR-39	70	71	1	bx	0		0				friable, silicified fracture zones
MR-39	71	72	2	fr	0		0				highly fractured/some silicified/faulted zone-pyro. filled frac.
MR-39	72	73	4	fr	0		0				highly fractured/faulted zone-pyro. filled frac./ bleached frac., core broken up
MR-39	73	74	0	fr	0		0				highly frac. zone with broken core
MR-39	74	75	1	fr	0		0				highly frac. zone with broken core
MR-39	75	76	0	fr	0		0				less frac./more comp, pyrite on frac.
MR-39	76	77	1	fr	0		0				some frac contain sid.? and diss. pyrite, pyr. in vug
MR-39	77	78	0	fr	0		0				sid. filling some frac.
MR-39	78	79	0	fr	0		0				missing core
MR-39	79	80	0	fr	0		0				apatite growth on a open frac., missing core
MR-39	80	81	0	fr	0		0				sid along coarse bed?, start to see visible bedding
MR-39	81	82	0	fr	0		0				brecciated zone
MR-39	82	83	0	fr	0		0				
MR-39	83	84	0	fr	0		0				frac. bleached
MR-39	84	85	0	fr	0		0				frac.silicified
MR-39	85	86	0	fr	0		0				frac.silicified, open frac.-crystal growth
MR-39	86	87	0	fr	0		0				drusy quartz along fracture and bedding
MR-39	87	88	0	fr	0		0				pyrite on frac.
MR-39	88	89	0	fr	0		0				sid. filled frac.
MR-39	89	90	0	fr	0		0				beginning of coarse beds, hard to tell bedding, bleached frac.
MR-39	90	91	0	fr	0		0				sid./pyrite filled frac., end of non-visible bedding
MR-39	91	92	0	fr	0		0				
MR-39	92	93	0	fr	0		0				
MR-39	93	94	0	n	0		0				end of coarse bedding
MR-39	94	95	0	fr	0		0				
MR-39	95	96	0	n	0		0				drusy quartz
MR-39	96	97	0	fr	0		0				large frac. with br. filling and pyrite
MR-39	97	98	0	fr	0		0				styl. are clay filled-// to bedding?
MR-39	98	99	0	fr	0		0				
MR-39	99	100	0	fr	0		0				10% broken core
MR-39	100	101	0	fr	0		0				pyrite fills frac. and vugs, 20% broken core
MR-39	101	102	0	fr	0		0				40% broken core
MR-39	102	103	0	fr	0		0				30% broken core
MR-39	103	104	0	fr	0		0				next 4m is not in order (box dropped?), br min along bedding, pyrite in nodules along frac.
MR-39	104	105	0	fr	0		0				drusy quartz, 65% broken core-hard to get readings, pyrite nodules along frac.
MR-39	105	106	0	fr	0		0				100% broken core-fractured?
MR-39	106	107	1	fr	0		0				
MR-39	107	108	0	fr	0		0				
MR-39	108	109	1	fr	0		0				drusy quartz and pyrite along fractures
MR-39	109	110	1	fr	0		0				drusy quartz
MR-39	110	111	1	fr	0		0				pyrite infilled intraclast, 2 sets of frac., one with pyrob. other crystal filled
MR-39	111	112	1	fr	0		0				drusy quartz.
MR-39	112	113	1	fr	0		0				drusy quartz and pyrite along fractures
MR-39	113	114	2	fr	0		0				pyro. filled frac.
MR-39	114	115	2	fr	0		0				broken core, oil and clay filled frac.
MR-39	115	116	1	ft,fr	0,0		0,0				silicified fracture zone
MR-39	116	117	2	ft,fr	0,0		0,0				drusy quartz.
MR-39	117	118	1	fr	0		0				drusy quartz.

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-39	118	119	95	m	p	C	Lp	c	m	s	m	m	1	0	0	0	0	d	0.4	Bk	d	3	n		Sr				n	n
MR-39	119	120	90	t	p	P	LrSr	c	m	f	m	m	1	0	0	0	0	n		n		4	r		Sr				p	f
MR-39	120	121	97	t	p	C	Lr	f	m	f	m	m	1	0	0	0	0	n		n		16	n		Sr				p	f
MR-39	121	122	97	t	p	C	LrSr	c	m	f	m	m	1	0	0	0	0	n		n		9	n		Sr				p	f
MR-39	122	123	100	t	p	P	LrSr	c	m	f	m	m	1	0	0	0	0	n		Bk	d	3	r		Sr				p	f
MR-39	123	124	100	t	p	C	Lr,pu	c	m	f	m	m	1	0	0	0	0	d	0.1	n		5	r		Sr				p	f
MR-39	124	125	98	t	p	C	Lr	c	m	f	m	m	1	0	0	0	0	d	0.1	n		9	n		Sr				p	f
MR-39	125	126	97	t	p	C	Lr,pu	c	m	f	m	m	1	0	0	0	0	n		n		6	n		Sr				p	f
MR-39	126	127	40	t	p	C	LpSr	c	m	f	m	m	1	0	0	0	0	n		n		2	n		Sr				p	f
MR-39	127	128	90	t	p	C	Lpu,r	c	m	s	m	m	1	0	1.5	0.5	0	n		n		5	n		Sr				p	f
MR-39	128	129	96	t	p	C	Lpu,rSr	c	m	f	m	c	1	0	0	0	0	d	0.2	n		13	n		Sr				p	f
MR-39	129	130	96	t	p	P	Lp	f	m	f	m	m	1	0	0	0	0	n		n		15	n		Sr;Sm				p	f
MR-39	130	131	96	t	p	P	Lp	f	m	f	m	m	1	0	0	0	0	n		n		15	n		Sr				p	f
MR-39	131	132	60	t	p	P	Lp	f	m	f	m	m	1	0	0	0	0	n		n		30	n		Sr				p	f
MR-39	132	133	20	t	p	P	Lp	c	m	f	m	m	1	0	0	0	0	n		n		4	n		Sr				p	f
MR-39	133	134	96	t	p	P	Lr	c	m	f	m	c	1	0	0	0	0	p	0.3	n		12	n		Sr				p	f
MR-39	134	135	96	m	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n		n		8	n		Sr				p	f
MR-39	135	136	90	m	p	P	LrSrBy	c	m	f	m	c	1	0	0	0	0	p	0.1	n		9	r		Sr				p	f
MR-39	136	137	97	m	p	P	Lr	c	m	f	m	m	1	0	0	0	0	d	0.6	n		9	n		Sr;Sm				p	f
MR-39	137	138	65	m	p	P	Lr	c	m	f	m	m	1	0	0	0	0	n		n		9	n		Sm				p	f
MR-39	138	139	25	m	p	P	Lr	c	m	f	m	m	1	0	0	0	0	n		n		3	n		Sm				p	f
MR-39	139	140	95	m	p	P	LrBy	c	s	f	m	m	1	0	0	0	0	n		n		5	n		Sr				p	f
MR-39	140	141	95	m	p	P	Lr,pu	f	m	f	m	c	1	0	0	0	0	n		n		6	n		Sr;Sm				p	f
MR-39	141	142	95	m	p	P	Lr,pu	f	m	f	m	c	1	0	0	0	0	d	0.1	n		5	n		Sr				p	f
MR-39	142	143	99	m	p	P	Lr,puBy	c	m	f	m	m	1	0	0	0	0	g	0.1	n		3	n		Sr				p	f
MR-39	143	144	99	m	p	P	Lr,puBy	c	s	vf	m	c	1	0	0	0	0	g	0.2	n		6	n		Sr				p	f
MR-39	144	145	100	t	p	C	Lp	c	s	f	m	c	1	0	0	0	0	n		n		9	n		Sr				p	f
MR-39	145	146	97	t	p	P	Lr	f	m	f	m	vc	3	0.5	0	0	0	p	0.2	n		6	n		Sr				p	f
MR-39	146	147	97	t	p	P	Lr	f	m	f	m	vc	2	0	0	0	0	n		n		30	n		Sr				p	f
MR-39	147	148	96	t	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n		n		30	n		Sr				p	f
MR-39	148	149	96	t	p	P	U	f	m	f	m	m	2	0	0	0	0	n		n		30	n		Sr				p	f
MR-39	149	150	95	t	p	C	U	f	m	f	m	c	1	0	0	0	0	n		n		30	n		Sr				p	f
MR-39	150	151	98	t	p	P	Lr	c	s	f	m	c	1	0	0	0	0	n		n		10	n		Sr				p	f
MR-39	151	152	97	t	p	P	Lr	c	s	f	m	c	1	0	0	0	0	n		n		12	n		Sr				p	f
MR-39	152	153	98	t	p	P	Lr	c	s	f	m	c	3	1	0	0	0	n		n		2	n		Sr				p	f
MR-39	153	154	98	t	p	P	LpuSpuB	c	m	f	m	c	2	0	0	0	0	n		n		5	r		Sr;Sm				p	f
MR-39	154	155	75	t	p	P	Lpu	c	m	f	m	vc	2	0	0	0	0	n		n		5	n		Sr				p	f
MR-39	155	156	45	t	p	P	BrLpu	c	m	f	m	c	1	0	0	0	0	d	0.1	n		4	n		Sr				p	f
MR-39	156	157	98	t	p	P	Lr	c	m	f	m	vc	3	1	0	0	0	p	0.1	n		10	n		Sr				p	f
MR-39	157	158	97	t	p	C	Lr	c	m	f	m	vc	4	1	0	0	0	n		n		30	n		Sr				p	f
MR-39	158	159	97	t	p	C	Lr	c	m	y	m	vc	2	0	0	0	0	p	0.2	n		30	c		Sr				p	f
MR-39	159	160	100	t	p	C	Lr	c	m	f	m	vc	2	0	0	0	0	w	1	n		10	n		Sr;Sm				p	f
MR-39	160	161	99	t	p	P	LrBr	c	m	f	m	vc	4	1	0	0	0	n		n		6	n		Sr				p	f
MR-39	161	162	98	m	p	P	LpuLp	c	m	f	m	vc	3	0.5	0	0	0	p	0.5	n		9	n		Sr				p	f
MR-39	162	163	98	m	p	C	U	c	m	f	m	vc	3	1	0	0	0	p	0.1	n		6	n		Sr				p	f
MR-39	163	164	92	m	p	C	U	c	m	f	m	vc	4	2	0	0	0	n		n		2	n		Sr				p	f
MR-39	164	165	98	m	p	C	Lpu	c	m	f	m	vc	4	3	0	0	0	d	0.2	Bn	l	2	r		Sr				p	f
MR-39	165	166	100	m	p	C	Lpu	c	m	vf	m	vc	5	5	0	3	0	n		Bn	l	3	r		Sr				p	f;i
MR-39	166	167	98	m	p	C	LpuMy	c	m	vf	c	vc	7	7	0	2.5	0	n		Bn;Bn	l;d	2	r	G1	Sr				p	f
MR-39	167	168	98	m	p	P	LrBp	f	m	f	m	vc	4	3	0	0	0	w	1	n		30	n		Sr				p	f
MR-39	168	169	98	m	m	P	LrBp	c	m	f	c	vc	4	2	0	0.5	0	p	0.3	n		5	n		Sr				p	f
MR-39	169	170	100	m	p	P	LrBp	c	m	f	c	vc	4	1	0	0	0	n		n		3	n		Sl				p	f
MR-39	170	171	98	m	p	P	LpMy	c	m	f	c	vc	3	1	0	0	0	n		n		5	n		Sl				p	f;i
MR-39	171	172	100	m	p	P	U	c	m	f	m	vc	2	0	0	0	0	n		n		6	n		Sl				p	f;i
MR-39	172	173	87	m	p	P	U	c	m	f	m	c	1	0	0	0	0	n		n		4	n		Sl				p	f;i
MR-39	173	174	90	m	p	C	U	c	m	f	m	c	3	0.5	0	0	0	n		n		3	n		Sl				p	i;f
MR-39	174	175	99	m	p	C	U	c	m	f	m	c	10	2	0	0	0	n		n		1	n		Sl				p	i;f
MR-39	175	176	98	m	p	C	U	c	m	f	m	vc	5	2	0	0	0	p	0.1	n		3	n		Sl				p	i;f
MR-39	176	177	100	m	p	C	U	c	m	f	m	c	2	0	0	0	0	n		n		0	n		Sl;Sm				n	n
MR-39	177	178	98	m	p	C,Pu	Sbr,BpuG	c	m	f	m	c	3	0.5	0	0	0	n		Bn	l	0	n		Sl;Sr				p	n
MR-39	178	179	97	a	m	P,M	Sr,wLr	c	m	f	c	vc	3	1	0	0	0	g	0.3	n		2	n		Sm				n	n
MR-39	179	180	98	a	m	P,M	Sm	c	m	f	c	c	6	2	0	0	0	n		n		4	n		Sm				n	n
MR-39	180	181	98	a	m	P,M,Gn	Sm	c	m	m	c	vc	10	4	0	0	0	n		n		3	n		Sm				p	f
MR-39	181	182	90	a	p	P,Gn	Lr	c	m	m	c	vc	7	4	0	0	0	n		n		4	n		Sm				p	f

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct.FF Cement	Tec. Struct.FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-39	118	119	0	ft,fr	0;0		0;0				fault? zone, clay filled faults
MR-39	119	120	1	fr	0		0				more fractured @ base
MR-39	120	121	1	fr	0		0				highly fractured core
MR-39	121	122	2	fr	0		0				highly fractured
MR-39	122	123	1	fr	0		0				pyrite replaced intraclast
MR-39	123	124	2	fr	0		0				most pyro. filled frac.
MR-39	124	125	2	fr	0		0				most pyro. filled frac.
MR-39	125	126	1	fr	0		0				most pyro. filled frac.
MR-39	126	127	1	fr	0		0				missing 60%core
MR-39	127	128	2	fr	0		0				drusy quartz
MR-39	128	129	3	fr	0		0				core highly fractured,most filled with pyro.
MR-39	129	130	3	fr	0		0				slicified fratured zone, highly fract.
MR-39	130	131	3	fr	0		0				core highly fractured,most filled with pyro., unconsol. material (clay) in fault?
MR-39	131	132	3	fr	0		0				60% core,core highly fractured,most filled with pyro.
MR-39	132	133	1	fr	0		0				20% core
MR-39	133	134	3	fr	0		0				qtz viens-infilled frac.?, core highly fractured,most filled with pyro., beginning of fault zone?
MR-39	134	135	2	fr	0		0				slicified and bleached fractures? (appear as qtz viens)
MR-39	135	136	2	ft,fr	0;0		0;0				slicified fratured zone, highly fract.
MR-39	136	137	1	ft,fr	0;0		0;0				slicified fratured zone, highly fract.
MR-39	137	138	1	fr	0		0				slicified fratured zone, highly fract.
MR-39	138	139	1	fr	0		0				slicified fratured zone, highly fract.
MR-39	139	140	2	fr	0		0				end of fault zone
MR-39	140	141	3	fr	0		0				frac. increase towards base, unconsol. at base
MR-39	141	142	3	fr	0		0				unconsol. & highly frac.at top
MR-39	142	143	2	fr	0		0				
MR-39	143	144	2	fr	0		0				yellow staining
MR-39	144	145	3	fr	0		0				all frac. tar filled
MR-39	145	146	5	fr	0		0				uncoloidated at base-highly frac.,-tar stained
MR-39	146	147	15	fr	0		0				highly fractured (too many to count) -tar filled, most frac. where unconsolidated
MR-39	147	148	25	fr	0		0				highly fractured (too many to count) -tar filled
MR-39	148	149	25	fr	0		0				highly fractured (too many to count) -tar filled, 20% broken core
MR-39	149	150	25	fr	0		0				highly fractured (too many to count) -tar filled, 40% broken core
MR-39	150	151	4	ft,fr	0;0		0;0				silicified fracture zone
MR-39	151	152	3	fr	0		0				
MR-39	152	153	1	fr	0		0				loss of abundant tar
MR-39	153	154	1	fr	0		0				next 4m may not be in order (box dropped?, contains some basement), oil filled frac. apperas silic.
MR-39	154	155	1	fr	0		0				start to see granules & coarser beds
MR-39	155	156	1	fr	0		0				tar filled frac.
MR-39	156	157	2	fr	0		0				
MR-39	157	158	4	ft,fr	0;0		0;0				fault? at top, highly frac.-tar filled frac., 40% broken core
MR-39	158	159	4	ft,fr	0;0		0;0				clay filled fault, highly frac.-tar filled frac., 40% broken core
MR-39	159	160	3	fr	0		0				highly fractured -tar filled
MR-39	160	161	2	ft,fr	0;0		0;0				silicified fracture zone
MR-39	161	162	1	fr	0		0				vc. beds forming, 2 sets of frac.-one cuts the other, both tar filled
MR-39	162	163	1	fr	0		0				2 sets of frac.-one cuts the other, both tar filled
MR-39	163	164	1	fr	0		0				vc. grains are qtz. and rock frag.
MR-39	164	165	1	ft	0		0				1st coarse bed @ 164.66m
MR-39	165	166	1	fr	0		0				2cm bed of vf. ss. between c./vc. beds
MR-39	166	167	1	ft,fr	0;0		0;0				alternating vf/f - c/vc beds
MR-39	167	168	6	fr	0		0				highly frac. tar filled zone with broken core at base
MR-39	168	169	1	fr	0		0				stylolite are clay filled
MR-39	169	170	1	ft,fr	0;0		0;0				2 clay filled faults
MR-39	170	171	3	fr	0		0				possible yellow staining from sid.?
MR-39	171	172	5	fr	0		0				don't see granules
MR-39	172	173	3	fr	0		0				lose coarse bedding
MR-39	173	174	6	fr	0		0				
MR-39	174	175	4	fr	0		0				granules maily rock frag.
MR-39	175	176	4	fr	0		0				see vc./granule beds
MR-39	176	177	0	n	0		0				finner grained, loss of prominent bedding and tar
MR-39	177	178	0	n	0		0				20% unbleached (deep purple), sid? spots at base
MR-39	178	179	0	fr	0		0				beginning of coarse beds, deeply hem. at base
MR-39	179	180	0	fr	0		0				bleached frac.
MR-39	180	181	1	fr	0		0				a limeonite? filled frac., start to see pebbles
MR-39	181	182	1	fr	0		0				clay filled styl., abundant yellow clay from alteration/breakdown?

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSSG Grain Size	PSSS Grain Size	PSSF Grain Size	PSSM Grain Size	PSSP Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-39	182	183	98	a	m	Gn,P	U	c	m	m	c	c	10	4	0	0	0	n		n		0	n		Sm				n	n
MR-39	183	184	97	a	p	P,M	FmSu	c	m	y	c	vf	6	2	0	0	0	n		n		1	n		Sm				n	n
MR-39	184	185	97	a	p	Gn	Su	e	m	y	c	vc	15	4	0	0	0	n		Bn	d	4	n		Sm				n	n
MR-39	185	186	97	a	p	Gn	Su	c	m	y	c	vc	20	6	0	0	0	n		Bn	d	4	n		Sm				n	n
MR-39	186	187	98	a	p	Gn,P	Lr	c	m	vf	c	g	34	10	0	10	0	n		Bn	d	1	r		Sm				n	n
MR-39	187	188	98	a	p	Gn,P	Lr	c	m	m	c	ps	30	30	0	0	12	n		n		4	n		Sm				n	n
MR-39	188	189	98	a	p	Gn,P	Lr	c	m	m	c	g	55	15	0	0	0	n		n		0	n		Sm				n	n
MR-39	189	190	90	a	p	Gn,P	Lr	c	m	m	c	g	25	14	1	0	0	d	4	n		1	n		Sm				n	n
MR-39	190	191	99	a	p	Gn,P,M	M	c	m	m	c	ps	18	18	0	0	0	n		n		1	n	G1;Gl	Sm;Sl				n	n
MR-39	191	192	99	a	p	P	U	c	m	f	c	g	10	10	0	0	0	n		n		1	n	Gl	Sm				n	n
MR-39	192	193	99	a	p	P,Gn	M	c	m	m	c	g	11	14	0	0	0	n		n		3	n	Gl	Sm				n	n
MR-39	193	194	100	a	m	M,Gn	M	c	m	m	c	g	18	10	0	1	0	n		n		1	n	Gl	Sm				p	f
MR-39	194	195	96	a	m	Gn	U	c	m	y	c	ps	18	15	0	0	0	n		n		1	r	Gl	Sm				n	n
MR-39	195	196	96	a	m	Gn	U	c	m	y	c	g	41	12	0	0	0	n		n		2	n	Gl	Sm				n	n
MR-39	196	197	99	a	m	Gn,P	M	c	m	m	c	vc	32	9	0	0	2	n		n		0	r	Gl	Sm				n	n
MR-39	197	198	99	a	d	Gy	B	c	m	m	c	g	8	11	0	0	3	n		n		0	n	Gl	Sm				n	n
MR-39	198	199	99	a	d	Gy	B	c	m	m	c	c	77	7	0	0	0	n		n		0	n		Sm				n	n
MR-39	199	200	70	a	d	Bk	U	c	m	y	c	vf	2	0	0	0	0	n		n		0	n		Sm				n	n
MR-39	200	201	0																			0								
MR-39	201	202	0																											
MR-39	202	203	0																											
MR-39	203	204	30	a	d	Gy	U	c	m	m	c	vc	6	2	0	0	0	n		n			n		Sm				n	n
MR-40	34	35	95	t	m	P;Pu	Lr	c	m	f	m	c	1	0	0	0	0	n		Bn	d	0	s		Sr	Fr			n	n
MR-40	35	36	98	mt	p	P	Lr	c	m	f	m	c	3	0	0	0	0	n		Bn;Bk	d;d	1	c		Sr				n	n
MR-40	36	37	99	mt	p	P	Lr	c	m	f	m	c	9	1	0	0	0	n		Bn;Bk	d;d	0	r		Sr	Fr			n	n
MR-40	37	38	98	tm	p	P	Lr	c	m	f	m	c	3	0.5	0	0	0	n		Bk	d	1	n		Sr				p;p	f;i
MR-40	38	39	98	tm	p	P	Lr	c	w	f	m	c	6	0.5	0	0	0	n		Bk	d	2	n		Sr	Fm			n	n
MR-40	39	40	98	tm	d	Pu;P	Ld	c	w	f	f	c	2	0	0	0	0	n		Bk	l	3	n		Sr	Fm			n	n
MR-40	40	41	94	t	p	P	Lr;Sr	c	m	f	m	c	8	1	0	0	0	n			n	2	n		Sr;St				n	n
MR-40	41	42	99	mt	p	P;Y	Lr;Sd	c	m	f	m	vc	9	2	0	0	0	n		Bk	d	0	n		Sr				n	n
MR-40	42	43	98	tm	m	P	Lr;Sd	c	w	f	c	vc	8	3	0	0	0	n		Bk	d	4	r		Sr				n	n
MR-40	43	44	98	tm	p	C	Lr;Sd	c	m	f	c	vc	3	1	0	0	0	n			n	0	n		Sr				p	i
MR-40	44	45	98	t	m	P	Lg	c	m	f	m	c	3	1	0	0	0	n		Bn	l	0	r		Sr	Fr			p	i
MR-40	45	46	98	mt	m	P	Lr	c	m	f	c	vc	19	4	0	0	0	n			n	0	c	Gl	Sm	Fr			p	i
MR-40	46	47	98	tm	m	C	Lr	c	m	f	c	vc	10	3	0	0	0	n			n	0	r		Sr				p	i
MR-40	47	48	99	tm	m	P	Lr	c	m	f	m	c	2	0	0	0	0	n			n	0	n		Sr	Fm			n	n
MR-40	48	49	98	tm	m	P	Lr	c	m	f	c	ps	14	5	0	0	0	n			n	0	n	G1	Sm	Fr		Pr	p	i
MR-40	49	50	92	mt	m	P	Lr	c	m	m	c	g	14	2	0	0	0	n			n	0	n		Sm;Sr				n	n
MR-40	50	51	99	m	d	Pu;P	B;Lr	c	m	vf	m	c	6	1	0	1.5	0	n			n	0	n		Sr	Fh			n	n
MR-40	51	52	98	mt	d	P;Pu	B;Lr	c	m	vf	c	vc	5	1	0	0	0	n			n	0	n		Sr	Fh			p	i
MR-40	52	53	99	m	m	P	Lr	c	m	f	m	vc	14	2	0	0	0	n			n	0	r		Sr				p	i
MR-40	53	54	99	mt	m	P	Lr	c	m	m	m	vc	12	2	0	0	0	d	0.7	Bk	l	1	n		Sr;Sm				n	n
MR-40	54	55	99	tm	m	P	Lr	c	m	m	m	vc	9	2	0	0	0	n			n	0	n		Sm;Sr				n	n
MR-40	55	56	99	tm	p	P	Lr	c	m	f	f	m	1	0	0	0	0	p;g	0.6	Bn	d		n			Fr			n	n
MR-40	56	57	99	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	w;g	1	Bn	d	0	n		Sr				p	i
MR-40	57	58	99	tm	p	P	B	c	m	f	m	c	1	0	0	0	0	g	0.5		n	0	n		Sr				n	n
MR-40	58	59	99	tm	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	0	n		Sm;Sr				n	n
MR-40	59	60	98	t	m	P	Lr	c	m	f	m	m	1	0	0	0	0	g	0.4		n	3	n		Sm;Sr				n	n
MR-40	60	61	97	mt	m	P	Lr	c	m	f	m	c	1	0	0	0	0	p	0.3		n	5	n		Sr;Sm				n	n
MR-40	61	62	98	tm	m	P	Lr	c	m	f	m	c	1	0	0	0	0	p	0.1		n	0	n		Sr	Fm			p	f
MR-40	62	63	98	t	p	P	Lr	c	m	f	m	c	1	0	0	0	0	g	0.1		n	0	r		Sr				p	f
MR-40	63	64	99	tm	m	P	Lr	c	m	f	m	c	1	0	0	0	0	p	0.1		n	1	n		Sm;Sr				n	n
MR-40	64	65	96	tm	m	P	Lr;Sr	c	m	f	m	c	1	0	0	0	0	p	0.8		n	1	r		Sm;Sr				n	n
MR-40	65	66	98	mt	m	P	Ld	c	m	f	m	c	1	0	0	0	0	p	0.4	Bn	d	0	n		Sr				n	n
MR-40	66	67	99	tm	m	P	Lr	c	m	f	m	c	1	0	0	0	0	g	0.1		n	0	n		Sr				n	n
MR-40	67	68	98	mt	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	0	n		Sr				n	n
MR-40	68	69	98	mt	m	P	Lr	c	m	f	m	c	1	0	0	0	0	g	0.2	Bn	d	0	n		St;Sm				n	n
MR-40	69	70	99	t	p	P	Lr	c	m	f	m	c	1	0	0	0	0	w	0.7		n	1	n		Sl	Fr			n	n
MR-40	70	71	98	tm	p	P	Lr			f	m	c	1	0	0	0	0	d	0.2		n				St;Sr					
MR-40	71	72	98	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	g	0.1		n	0	n		Sr	Fl			n	n
MR-40	72	73	98	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	w	0.7		n	0	n		Sr	Ft			n	n
MR-40	73	74	95	mt	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	0	n		Sr	Fl			n	n
MR-40	74	75	98	m	p	C	Lr	c	m	f	m	vc	2	0	0	0	0	n		Bn	d	0	n		Sr				n	n
MR-40	75	76	98	mt	p	P	Lr	c	m	f	m	c	1	0	0	0	0	d	0.3	Bn	d	0	n		Sr				n	n

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-39	182	183	0	n	0		0				
MR-39	183	184	0	ft	0		0				bedding completely altered to clay-still contains previous colour pattern
MR-39	184	185	0	ft,fr	0;0		0;0				bedding completely altered to clay-still contains previous colour pattern
MR-39	185	186	0	ft,fr	0;0		0;0				granules/pebbles are qtz and rock frag., clay filled frac./fault zones
MR-39	186	187	0	fr	0		0				beginning of large pebbles (subrounded), frac. has large sid. crystals, vf. grained beds between coarse beds
MR-39	187	188	0	fr	0		0				large clay filled frac., see abundant pebbles (qtz, rock frag.), some gran./pebbles aligning in beds
MR-39	188	189	0	n	0		0				
MR-39	189	190	0	fr	0		0				clay filled frac/bed?, intracl. are hard
MR-39	190	191	0	fr	0		0				gravely ss (9 cm)
MR-39	191	192	0	fr	0		0				section of med.gr. beds with no gran./peb., abundant styl in med. gr. beds, gravely ss (4cm)
MR-39	192	193	0	fr	0		0				gravely ss (10 cm)
MR-39	193	194	1	fr	0		0				gravely ss (7 cm)
MR-39	194	195	0	fr	0		0				gravely ss (6 cm)
MR-39	195	196	0	fr	0		0				gravely ss (4 cm)
MR-39	196	197	0	n	0		0				lose granules/pebbles at the base, gravely ss (5cm)
MR-39	197	198	0	n	0		0				gravely ss(4cm)
MR-39	198	199	0	n	0		0				
MR-39	199	200	0	n	0		0				completely altered to black pitchblende, no grains visible, broken core, light green mineral forming on outside of pitchblende
MR-39	200	201									missing core (stored @ key lake)
MR-39	201	202									missing core (stored @ key lake)
MR-39	202	203									missing core (stored @ key lake)
MR-39	203	204	0	n	0		0				grey colour, not a lot of granules
MR-40	34	35	0								rounded core in top half of the meter.
MR-40	35	36	0	fd	25		0				
MR-40	36	37	0								
MR-40	37	38	1								
MR-40	38	39	0	fr	25	y	0				
MR-40	39	40	0	fd	15		0				
MR-40	40	41	0								
MR-40	41	42	0								start to see pebble beds, and vc.-c. gr. beds
MR-40	42	43	0								
MR-40	43	44	3								
MR-40	44	45	2								
MR-40	45	46	4								Has large pebble bed. At base is unsorted massive ss (with pebbles floating in it)
MR-40	46	47	1								
MR-40	47	48	0								lose a lot of the coasre material.
MR-40	48	49	10								pebbly beds at base. Beds not well sorted.
MR-40	49	50	0								
MR-40	50	51	0								
MR-40	51	52	1								
MR-40	52	53	9								
MR-40	53	54	0								pebble bed clase to base, occurs with clay bed on top.
MR-40	54	55	0								last pebble seen, grain size is larger above contact, and finer below (well sorted).
MR-40	55	56	0								
MR-40	56	57	1								
MR-40	57	58	0								
MR-40	58	59	0								
MR-40	59	60	0								
MR-40	60	61	0								
MR-40	61	62	1								
MR-40	62	63	1								
MR-40	63	64	0								
MR-40	64	65	0								
MR-40	65	66	0								
MR-40	66	67	0								
MR-40	67	68	0								
MR-40	68	69	0								
MR-40	69	70	0								
MR-40	70	71									
MR-40	71	72	0								
MR-40	72	73	0								
MR-40	73	74	0								
MR-40	74	75	0								
MR-40	75	76	0								

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-40	76	77	99	t	p	P	Lr	c	m	f	m	c	1	0	0	0	0	p	0.1	Bn	d	0	n		Sr;Sm				n	n
MR-40	77	78	98	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n		Bn	d	1	n		Sr				n	n
MR-40	78	79	99	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	0	n		Sl;Sr	Fm			n	n
MR-40	79	80	99	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	d	0.3		n	0	n		Sr	Fl			n	n
MR-40	80	81	98	tm	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	0	n		Sr				n	n
MR-40	81	82	97	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	1	n		Sr	Fl			n	n
MR-40	82	83	98	t	p	C	Lr;Sr	c	m	f	m	c	1	0	0	0	0	n			n	0	n		Sm;Sl				n	n
MR-40	83	84	98	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	g	0.3		n	0	n		Sl;Sr				n	n
MR-40	84	85	98	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	1	n		Sr				n	n
MR-40	85	86	98	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	p	0.1		n	0	n		Sm;Sl				n	n
MR-40	86	87	99	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	w	0.5	Bn	d	1	c		Sr	Fm			n	n
MR-40	87	88	98	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	w;n;n	1	Bn	d	0	n		Sr;Sl				n	n
MR-40	88	89	97	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	d;n	0.5	Bn	d	0	n		Sl;Sr				n	n
MR-40	89	90	97	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	d	0.2	Bn	d	3	n		Sr				n	n
MR-40	90	91	98	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n		Bn	d	0	n		Sr;Sm				n	n
MR-40	91	92	99	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n		Bn	d	2	n		Sr				n	n
MR-40	92	93	98	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	2	n		Sr				n	n
MR-40	93	94	98	tm	p	P	Lr	c	m	f	m	c	1	0	0	0	0	w	2.3		n	0	n		Sl;Sr				n	n
MR-40	94	95	98	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	p	0.2		n	5	n		Sr	Fm			n	n
MR-40	95	96	97	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	2	n		Sr				n	n
MR-40	96	97	98	t	p	C	Lr;Sr	c	m	f	m	c	1	0	0	0	0	w	1.8	Bn	d	2	n		Sr	Fm			n	n
MR-40	97	98	97	mt	p	C	Lr;Sr	c	m	f	m	c	1	0	0	0	0	p	0.2		n	2	n		Sr	Fl			n	n
MR-40	98	99	95	mt	p	C	Lr	c	m	f	m	c	2	0	0	0	0	n			n	3	n		Sr	Fm			n	n
MR-40	99	100	92	t	p	C	Lr;Sr	c	s	f	m	c	2	0	0	0	0	n			n	6	n		Sr	Fm			n	n
MR-40	100	101	98	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	5	n		Sr	Fm			n	n
MR-40	101	102	94	tm	p	C	Lr;Sr	c	m	f	m	c	1	0	0	0	0	n			n	25	n		Sr;S?				n	n
MR-40	102	103	98	m	p	C	Lr	c	m	f	f	c	1	0	0	0	0	n			n	15	n			Fm;Fr;F?			n	n
MR-40	103	104	97	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n		Bk	d	10	n		Sr	Fm			n	n
MR-40	104	105	95	m	p	C	Lr	c	m	f	f	m	1	0	0	0	0	n			n	12	n			Fr			p	f
MR-40	105	106	97	mt	p	C	Lr;Sr	c	m	f	m	m	1	0	0	0	0	n			n	14	n		Sr;Sm				p	f
MR-40	106	107	98	tm	p	P	Lr	c	m	f	m	c	1	0	0	0	0	d	0.3	Bk	d	2	n		Sr	Fm			n	n
MR-40	107	108	98	m	p	C	Lr	c	m	f	m	c	1	0	0	0	0	d;n	0.6		n	1	n		Sr	Fm			n	n
MR-40	108	109	98	mt	p	P	U	c	m	f	m	m	1	0	0	0	0	d	0.4		n	4	n		Sr				n	n
MR-40	109	110	98	t	p	C	Lr	c	m	f	f	c	1	0	0	0	0	n			n	4	n			Fm;Fr			n	n
MR-40	110	111	96	tm	p	C	Lr	c	m	f	f	c	1	0	0	0	0	g	0.3		n	7	n			Fm;Fr			p	f
MR-40	111	112	98	mt	p	C	Lr	c	m	f	f	c	1	0	0	0	0	p	0.1		n	10	n			Fr;Fm			p	f
MR-40	112	113	88	mt	p	P	B	c	m	f	m	m	1	0	0	0	0	n			n	7	n		Sr	Fm			p	f
MR-40	113	114	98	tm	p	P	Lr	c	m	f	m	m	1	0	0	0	0	n			n	5	n		Sr				n	n
MR-40	114	115	98	t	p	P	Lr	c	m	f	m	m	1	0	0	0	0	n			n	10	n		Sm;Sl				p	f
MR-40	115	116	95	tm	p	P	Lr	c	m	f	m	m	1	0	0	0	0	n			n	30	n		S?;Sm;Sr				p	f
MR-40	116	117	95	tm	p	C	Sr	c	m	f	m	m	1	0	0	0	0	n			n	30	n		Sr;Sm;S?				p	f
MR-40	117	118	95	mt	p	C	U	c	m	f	m	m	1	0	0	0	0	n			n	30	n		S?;Sm				p	f
MR-40	118	119	95	tm	p	P	Lr	c	m	f	m	m	1	0	0	0	0	n			n	30	n		S?;Sm				p	f
MR-40	119	120	95	tm	p	P	Lr	c	m	f	m	m	1	0	0	0	0	n			n	25	n		Sr;Sm				p	f
MR-40	120	121	96	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	20	n		Sr				p	f
MR-40	121	122	96	mt	p	P	Lr	c	m	f	m	c	1	0	0	0	0	g	0.5		n	20	n		Sr;Sm				p	f
MR-40	122	123	96	mt	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	20	n		Sm;Sr				p	f
MR-40	123	124	96	tm	p	C	Lr	c	m	f	m	m	1	0	0	0	0	n			n	20	n		Sr				p	f
MR-40	124	125	98	t	p	P	Lr	c	m	f	m	m	1	0	0	0	0	n			n	7	n		Sm;Sr				p	f
MR-40	125	126	96	tm	p	P	Lr	c	m	f	m	m	1	0	0	0	0	n			n	15	n		Sm				p	f
MR-40	126	127	96	t	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	12	n		Sr;Sm				p	f
MR-40	127	128	96	t	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	20	n		Sm;Sr				p	f
MR-40	128	129	98	mt	p	P	Lr	c	m	f	m	c	1	0	0	0	0	g	0.4		n	25	n		Sr;Sm				p	f
MR-40	129	130	96	t	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	30	n		S?;Sr				p	f
MR-40	130	131	95	t	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	30	n		S?				p	f
MR-40	131	132	96	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	25	n		Sr				p	f
MR-40	132	133	96	tm	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	30	n		Sm				p	f
MR-40	133	134	96	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	25	n		Sr				p	f
MR-40	134	135	96	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	20	n		Sm;Sr				p	f
MR-40	135	136	96	mt	p	P	Lr	c	m	f	m	c	4	0	0	0	0	d	0.3		n	10	n		Sr				p	f
MR-40	136	137	96	m	p	P	Lr	c	m	f	m	c	4	0	0	0	0	n			n	10	n		Sr				p	f
MR-40	137	138	97	mt	p	C	Lr	c	m	f	m	c	3	1	0	0	0	n			n	5	n		Sr				p	f
MR-40	138	139	98	m	p	C	Lr	c	m	f	m	vc	2	0	0	0	0	n			n	10	n		Sr				p	f
MR-40	139	140	83	mt	p	C	Lr	c	m	f	m	c	5	0.5	0	0	0	p	0.1		n	8	n		Sr				p	f

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-40	76	77	0								
MR-40	77	78	0								
MR-40	78	79	0								
MR-40	79	80	0								
MR-40	80	81	0								
MR-40	81	82	0								
MR-40	82	83	0								
MR-40	83	84	0								
MR-40	84	85	0								
MR-40	85	86	0								
MR-40	86	87	0								
MR-40	87	88	0								
MR-40	88	89	0								
MR-40	89	90	0	fr	25	y	0				
MR-40	90	91	0								
MR-40	91	92	0								
MR-40	92	93	0								
MR-40	93	94	0								
MR-40	94	95	0								
MR-40	95	96	0								
MR-40	96	97	0	fr	40	qd	0				
MR-40	97	98	0	fd	25	sc	0				
MR-40	98	99	0	fr	30	py	0				
MR-40	99	100	0	fr	20	s	0				
MR-40	100	101	0	fr;fr	30;30	py;qd	0;0				
MR-40	101	102	0	fr;fr	25;0	qd;s	0;0				highly fractured metre, fractures silicified, area of vuggy space caused by fractures-filled with siderite.
MR-40	102	103	0	fr	25	qo	0				highly fractured-silicified
MR-40	103	104	0	fr	40	py	0				
MR-40	104	105	1								core broken up
MR-40	105	106	1	fr	25	y	0				core broken up
MR-40	106	107	0								
MR-40	107	108	0								
MR-40	108	109	0								
MR-40	109	110	0	fr	0	py	0				
MR-40	110	111	1	fr	20	qo	0				
MR-40	111	112	1								
MR-40	112	113	1	fr	20;0	qd;o	0;0				large quartz crystals in fracture filled with pyrob.
MR-40	113	114	0	fr	30	y	2				
MR-40	114	115	1	fl	20	y	0				
MR-40	115	116	3	fr	20	y	0				highly fractured-most filled by pyrob., have clay frac./fault?
MR-40	116	117	2								highly fractured, broken core
MR-40	117	118	2	fl	20	y	2				highly frac., broken core
MR-40	118	119	2								highly frac., most core broken, can't see much
MR-40	119	120	2	fr	20	su	2				highly frac.
MR-40	120	121	2								highly frac. and broken
MR-40	121	122	2								highly frac. and broken
MR-40	122	123	2	fr	20	y	0				highly frac. and broken
MR-40	123	124	2	fr	20	y	0				highly frac. & broken
MR-40	124	125	1								
MR-40	125	126	1	fl	20	y	10				
MR-40	126	127	2								
MR-40	127	128	2								highly frac. & broken
MR-40	128	129	2	fr	20	y	0				highly frac.
MR-40	129	130	3	fr	20	y	0				highly frac. & broken
MR-40	130	131	3								whole metre is frac. & broken
MR-40	131	132	2	fr	20	qd	0				highly frac. & broken
MR-40	132	133	2								highly frac. & broken
MR-40	133	134	2								highly frac. & broken
MR-40	134	135	2								highly frac.
MR-40	135	136	2								highly frac.
MR-40	136	137	2								highlt frac.
MR-40	137	138	1								
MR-40	138	139	1								
MR-40	130	140	1								

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-40	140	141	97	tm	p	C	U	c	m	f	m	c	1	0	0	0	0	n			n	13	n		Sr;Sm				p	f
MR-40	141	142	98	mt	p	C	Lr	c	m	f	m	c	4	0.5	0	0	0	n			n	5	n		Sr;Sm				p	f
MR-40	142	143	98	t	m	P	Ld	c	m	f	m	vc	3	1	0	1	0	n			n	6	n		Sr				p	f
MR-40	143	144	98	mt	m	P	Ld	c	m	f	m	vc	3	1	0	0	0	d	0.3		n	2	n		Sr;Sm				p	f
MR-40	144	145	98	mt	m	C	Ld;Sr	c	m	f	m	vc	4	0.5	0	0	0	w	0.3		n	4	n		Sr;Sm				p	f
MR-40	145	146	97	m	p	P	Lr	c	m	f	m	vc	4	1	0	0	0	d;n	0.3		n	4	n		Sl;Sr				p	f
MR-40	146	147	97	tm	p	C	Lr	c	m	f	m	g	4	1	0	0	0	n			n	10	n		Sr				p;p	f;i
MR-40	147	148	97	tm	p	C	Lr	c	m	f	m	vc	5	1	0	0	0	n			n	9	n		Sr				p	f
MR-40	148	149	98	tm	p	P	Lr	c	m	m	m	vc	6	1	0	0	0	n			n	3	n		Sr;Sm				p	f
MR-40	149	150	98	mt	p	C	Lr	c	m	m	m	c	2	0	0	0	0	n			n	3	n		Sm;Sr				p	f
MR-40	150	151	98	mt	p	P	Lr	c	m	m	c	vc	2	0	0	0	0	w;n	1.6		n	2	n		Sr				p	f
MR-40	151	152	97	tm	p	C	Lr	c	m	f	m	vc	2	0	0	0	0	n			n	5	n		Sr				p	f
MR-40	152	153	98	mt	p	C	Lr	c	m	f	m	vc	3	0.5	0	0	0	n			n	2	n		Sr				n	n
MR-40	153	154	98	m	m	P;M	Ld;B	c	m	s	m	vc	3	0.5	0	9	0	d	0.5		n	1	n		Sr		Mh		p	f
MR-40	154	155	86	m	p	C	Lr	c	m	m	m	vc	5	0.5	0	0	0	n			n	2	n		Sr				p	f
MR-40	155	156	98	m	p	P	Lr	c	m	m	c	g	5	4	0	0	0	n		Bn	l	2	n		Sr			Pm	p	f
MR-40	156	157	98	m	p	C	U	c	m	m	c	g	5	6	0	0	0	n		Bk;Bn	l;l	0	n		Sr			Pr	n	n
MR-40	157	158	98	a	d	M;P	M	c	m	y	c	g	4	2	4	0	0	n		Bn	l	2	n		Sl;Sr		Mh	Pm	p	f
MR-40	158	159	98	a	m	M;P	M	c	m	m	c	vc	3	1	0	0	0	n			n	0	n		Sl;Sr				n	n
MR-40	159	160	98	m	m	R;P	M	c	m	m	c	g	3	1	0	0	0	p;n	0.3		n	2	n		Sl;Sr				p	f
MR-40	160	161	96	m	p	P	Lr	c	m	m	c	g	3	0.5	0.3	0	0	n			n	4	n		St;Sr				p	f
MR-40	161	162	98	tm	p	P	Lr	c	m	m	c	vc	2	0	0	0	0	n			n	4	n		St;Sr				p	f
MR-40	162	163	98	mt	p	C	Lr	c	m	m	c	vc	4	0.5	0	1	0	n			n	3	n		St;Sr				p	f
MR-40	163	164	98	tm	p	P	U	c	m	m	c	vc	2	0	0	0	0	n			n	4	n		St;Sr				p	f
MR-40	164	165	97	tm	p	C	U	c	m	m	c	vc	6	1	0	0	0	n			n	3	n		Sl				p	f
MR-40	165	166	97	m	p	C	M	c	m	m	c	g	5	1	0	0	0	n			n	3	n		Sl				p	f
MR-40	166	167	97	mt	p	C	U	c	m	f	c	vc	3	0.5	0	0	0	n			n	3	n		Sl;Sm	Fr			p	f
MR-40	167	168	58	mt	d	Pu;P	M	c	m	m	c	vc	2	0	0	0	0	n		Bn	l	0	n		Sm;Sl				n	n
MR-40	168	169	80	mt	d	Pu;Gn	B	c	m	m	c	vc	2	0	0	0	0	n			n	1	n		Sl				n	n
MR-40	169	170	92	tm	d	M;Gn	M	c	m	y	c	vc	2	1	0	1	0	n			n	2	n		Sl		Mh		n	n
MR-40	170	171	98	tm	d	M;Gn	M	c	w	m	c	g	12	2	0	0	0	n			n	2	n		Sm				n	n
MR-40	171	172	98	a	p	P;Pu	M	c	w	m	c	g	17	5	0	0	0	n			n	8	n		Sm				n	n
MR-40	172	173	98	a	m	Gn;P	M	c	w	m	c	pe	15	5	0	0	0	n			n	3	n		Sm;Sl				n	n
MR-40	173	174	98	a	m	Gn;P	M	c	w	y	vc	pm	55	12	0	0	0	n			n	5	n				Mm	Pm	n	n
MR-40	174	175	98	a	m	Pu;Gn;P	B	c	w	y	vc	pm	21	15	0	0	10	n			n	3	n					Pm	n	n
MR-40	175	176	98	a	m	P;Gn	B	c	w	y	vc	pe	18	8	0	0	0	n			n	2	n					Pm;Pl	n	n
MR-40	176	177	98	a	m	P	B	c	w	c	c	pe	11	12	0	0	12	n			n	2	n		Sl			Pl	n	n
MR-40	177	178	98	a	m	P;Gn	B	c	w	c	vc	pe	23	8	0	0	0	n			n	2	n	G1;Gl	Sl			Pm	n	n
MR-40	178	179	90	a	m	P;R	B	c	w	s	vc	pe	8	3	0	15	0	n			n	1	n		Sm		Mh	Pm	n	n
MR-40	179	180	97	a	m	P;Pu	M	c	w	s	vc	pe	22	6	2	0	0	w	1		n	1	n	G1			Mh	Pm	n	n
MR-40	180	181	99	a	d	P;Pu;Gn	M	c	w	s	vc	pe	16	13	0	6	11	d	1		n	1	n	Gl			Mh	Pm	n	n
MR-40	181	182	99	a	m	P;Pu	M	c	w	c	vc	pm	53	20	0	0	6	n			n	2	n	Gl				Pm	n	n
MR-40	182	183	99	a	d	P;Gn;Pu	M	c	w	s	vc	pe	19	6	0	0	3	d	1		n	1	n				Mh	Pm	n	n
MR-40	183	184	99	a	d	Pu;P;Gn	B	c	w	c	c	pe	18	10	0	0	2	n			n	0	n		Sh		Mh	Pm	n	n
MR-40	184	185	95	a	p	P;Gn	B	c	w	y	c	g	18	3	0	0	0	p	0.5		n	1	n		Sm		Mm	Pm	n	n
MR-40	185	186	99	a	m	P;Pu	M	c	w	c	vc	g	15	4	0	0	0	n			n	1	n		Sm			Pm	n	n
MR-40	186	187	99	a	m	P;Pu	M	c	w	c	vc	pm	21	8	0	0	0	n			n	3	n		Sm			Pm	n	n
MR-40	187	188	97	a	m	P;Pu	M	c	w	c	c	vc	5	2	0	0	0	p	0.5	Bk	d	4	a2		Sm;Sx				n	n
MR-40	188	189	99	a	p	P;Pu	M	c	w	c	vc	pe	12	12	0	0	0	n			n	2	n					Pm	n	n
MR-40	189	190	99	a	m	P;Pu	M	c	w	c	vc	pe	43	6	0	0	0	n			n	2	n					Pm	n	n
MR-40	190	191	95	a	m	Pu;P	M	c	w	c	vc	pm	30	7	0	0	0	n			n	1	n					Pm	n	n
MR-40	191	192	99	a	d	Pu;P	M	c	w	c	vc	g	21	7	0	0	0	n			n	0	n					Pm	n	n
MR-40	192	192.4	99	a	p	P;Pu	M	c	w	c	vc	pe	15	4	0	0	0	n			n	0	n					Pm	n	n
MR-41	51	52	99	tm	m	C	Lr	c	w	m	c	g	16	10	0	0	0	n			n	0	n		Sl			Pl	p	i
MR-41	52	53	98	tm	p	P	Lr;Sr	c	w	m	m	g	4	5	0	0	0	n		Bk	d	0	r		Sr;Sl				p	i
MR-41	53	54	99	tm	m	P	Lr	c	w	m	c	vc	5	2	0	0	0	n			n	0	n		Sr				n	n
MR-41	54	55	99	mt	m	P	Lr	c	w	m	m	vc	6	5	0	0	0	n			n	0	s		St;Sr				n	n
MR-41	55	56	98	mt	m	P	Lr	c	w	m	m	g	20	8	0	0	0	n			n	0	n		Sl			Pl	p	i
MR-41	56	57	98	mt	m	P	Lr	c	w	m	m	vc	6	2	0	0	0	n			n	0	n		St;Sr				p	i
MR-41	57	58	98	tm	m	P	Lr	c	m	m	c	vc	5	3	0	0	0	n			n	0	n		Sl				p	i
MR-41	58	59	98	mt	m	P	Lr	c	m	m	m	vc	3	1	0	0	0	n			n	1	n		Sl				p	f
MR-41	59	59.5	98	mt	m	P	Lr	c	m	m	c	g	7	14	0	0	0	n			n	1	r		Sl				p	f
MR-41	59.5	60	98	tm	p	P	Lr	c	m	f	m	m	3	0.5	0	0	0	n			n	4	n		Sr;Sl				p	f
MR-41	60	61	98	tm	p	C	Lr;Sr	c	m	f	m	c	1	0	0	0	0	p	0.5		n	5	n		Sr;Sl				p	f

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-40	140	141	2								
MR-40	141	142	1								
MR-40	142	143	2								
MR-40	143	144	1								
MR-40	144	145	1								
MR-40	145	146	1								start to see granules
MR-40	146	147	4								
MR-40	147	148	1								
MR-40	148	149	1								
MR-40	149	150	1								
MR-40	150	151	1								
MR-40	151	152	1								
MR-40	152	153	0								
MR-40	153	154	1								have 2 maroon silt beds
MR-40	154	155	1								
MR-40	155	156	1								
MR-40	156	157	0								becoming very coarse, have abundant heavy mineral bands.
MR-40	157	158	1								clay beds and drapes throughout the metre.
MR-40	158	159	0								
MR-40	159	160	1								
MR-40	160	161	1	fr	20	qd	0				a section of clay drapes
MR-40	161	162	1								
MR-40	162	163	1								
MR-40	163	164	1								
MR-40	164	165	1								
MR-40	165	166	1								
MR-40	166	167	1								
MR-40	167	168	0								core missing, bottom half of core dark purple
MR-40	168	169	0	fd	20		0				very dark core, has not been bleached
MR-40	169	170	0					ms	y	7	dark red (hematized?), has not been bleached, have clay beds throughout
MR-40	170	171	0								not bleached, first appearance of large pebble
MR-40	171	172	0	fr;fr	20;20	y;y	0,0				getting coarser, contains large pebbles, bleached
MR-40	172	173	0	ft;fr	45;20	qd	0;0				green colour in finner grained beds
MR-40	173	174	0	fr	20	y	0	ms	y	10	ss. at base is completely replaced by clay-keeps the original texture
MR-40	174	175	0	ft	20	y	3	ft;ms	y;y	4;10	top has replaced ss. with clay, fault lower down has ss. replaced with clay
MR-40	175	176	0	ft	10	y	0	fo	y	15	large fault with green coloured clay replacing the wall rock
MR-40	176	177	0	fr	20	y	0				first apperance of well defined pebble beds, loses a lot of coarse beds
MR-40	177	178	0								
MR-40	178	179	0								has a dark red silt bed at base
MR-40	179	180	0	fr	30	y	0				contains clay drapes
MR-40	180	181	0	fr	25	y	0				
MR-40	181	182	0	fr	25	y	0				
MR-40	182	183	0								contains thin clay beds
MR-40	183	184	0								
MR-40	184	185	0	ft	30	y	10	fo	y	10	clay replaced fault is green colour-probably chlorite
MR-40	185	186	0	ft	15	y	2	fo	y	2	large fault running through the metre
MR-40	186	187	0	fr;fr	25;20	c;y	0,0				
MR-40	187	188	0	ft	10	y	0	fo	y	1	beds show steep bedding, contains a fault that has replacement clay along fault (chlorite replaces some)
MR-40	188	189	0	fr	30	s	0				
MR-40	189	190	0	fr	10	n	0				
MR-40	190	191	0	fr	30	y	0				
MR-40	191	192	0								
MR-40	192	192.4	0								base at basement/FP contact is sharp and unconformable, the ss. sits on top of the regolith
MR-41	51	52	17								
MR-41	52	53	10								
MR-41	53	54	0								
MR-41	54	55	0								
MR-41	55	56	11								
MR-41	56	57	1								
MR-41	57	58	12								
MR-41	58	59	1								
MR-41	59	59.5	1								base is LzL/MF contact, sharp scoured base-undulatory, vc. grained ss. (LzL) sitting on f-m gr. ss.
MR-41	59.5	60	1	fr	30	qd	0				
MR-41	60	61	1	fd;fr	20;20	qd,y	0,0				

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C> 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSSG Grain Size	PSSS Grain Size	PSSF Grain Size	PSSM Grain Size	PSSP Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-41	61	62	93	mt	p	C	Lr	c	m	f	f	c	1	0	0	0	0	p	0.5		n	2	n		Sl	Fl;Fr			p	f
MR-41	62	63	98	mt	p	C	Lr;Sr	c	m	f	m	c	1	0	0	0	0	g	0.5		n	4	n		Sl;Sr				p	f
MR-41	63	63.8	98	mt	m	P	Lr	c	m	f	m	c	1	0	0	0	0	d;g	0.5		n	0	n		Sm;Sl				n	n
MR-41	72.4	73	98	mt	p	C	Lr;Sr	c	m	f	f	c	1	0	0	0	0	p	0.5		n	2	n			Fr;Fl			n	n
MR-41	73	74	98	tm	p	P	Lr;Sr	c	m	f	m	c	1	0	0	0	0	p	0.5		n	4	n		Sr;Sl				p	f
MR-41	74	75	98	mt	p	C	Lr	c	m	y	m	c	1	0	0	0	0	p	0.5		n	15	s		Sr;S?				p	f
MR-41	75	76	98	tm	p	C	Lr	c	m	f	m	m	1	0	3	0	0	n			n	6	n		Sr				n	n
MR-41	76	77	98	tm	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	4	c		Sr				n	n
MR-41	77	78	98	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n		Bn	d	10	n		Sr;S?				n	n
MR-41	78	79	98	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	d	0.5		n	3	n		Sr				n	n
MR-41	79	80	97	tm	p	C	Lr	c	m	f	f	m	1	0	0	0	0	n		Bn	d	2	n			Fr			n	n
MR-41	80	81	98	tm	p	C	U	c	m	f	f	m	1	0	0	0	0	g	0.5	Bn	d	1	n			Fm;Fr			n	n
MR-41	81	82	98	t	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n		Bn	d	0	r		Sr				n	n
MR-41	82	83	98	tm	p	C	Lr	c	m	f	m	m	1	0	0	0	0	d	0.5	Bn	d	0	n		Sr				n	n
MR-41	83	84	98	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	g	0.5	Bn	d	0	n		Sr				n	n
MR-41	84	85	99	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n		Bn	d	0	n		Sr;Sl				n	n
MR-41	85	86	98	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	p	0.5	Bn	d	1	n		Sr;Sl				n	n
MR-41	86	87	98	mt	p	C	Lr;Sr	c	m	f	m	c	1	0	0	0	0	g	0.5	Bn	d	0	r		Sr;Sm				n	n
MR-41	87	88	98	tm	p	C	Lr	c	m	f	f	c	1	0	0	0	0	w;g	1		n	1	n		Sr	Fr			n	n
MR-41	88	89	97	m	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	3	r		Sr				n	n
MR-41	89	90	98	m	p	C	Lr	c	m	f	m	c	1	0	0	0	0	p	0.5		n	6	n		Sr				n	n
MR-41	90	91	98	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	3	n		Sr				n	n
MR-41	91	92	98	mt	p	C	U	c	m	f	m	c	1	0	0	0	0	n			n	1	n		Sr;Sm				n	n
MR-41	92	93	98	tm	p	C	U	c	m	f	m	c	1	0	0	0	0	n			n	1	n		Sr				n	n
MR-41	93	94	98	tm	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	3	n		Sr				n	n
MR-41	94	95	98	m	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	3	n		Sr				n	n
MR-41	95	96	99	tm	p	P	Lr;Sr	c	m	f	m	c	1	0	0	0	0	p	0.5		n	3	r		Sr				n	n
MR-41	96	97	98	tm	p	P	Lr;Sr	c	m	f	m	c	1	0	0	0	0	w	1		n	5	n		Sr				n	n
MR-41	97	98	99	m	p	P	Lr;Sr	c	m	f	m	c	2	0	0	0	0	n			n	1	n		Sr				n	n
MR-41	98	99	98	tm	m	C	Lr;Sr	c	m	f	m	c	2	0	0	0	0	d	0.5		n	0	n		Sr				n	n
MR-41	99	100	97	tm	m	C	Lr;Sr	c	m	f	m	c	2	0	0	0	0	p	0.5		n	2	n		Sr				n	n
MR-41	100	101	98	m	p	C	Lr;Sr	c	m	f	m	c	1	0	0	0	0	n		Bn	d	2	n		Sr				n	n
MR-41	101	102	98	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n		Bn	d	2	n		Sr				n	n
MR-41	102	103	97	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	2	n		Sr				n	n
MR-41	103	104	92	tm	p	C	Lr	c	m	f	f	m	1	0	0	0	0	n			n	0	n		Sr	Fr			n	n
MR-41	104	105	98	mt	p	C	Lr	c	m	f	m	m	1	0	0	0	0	g	0.5		n	6	n		Sr				p	f
MR-41	105	106	98	mt	p	C	Lr	c	m	f	m	m	1	0	0	0	0	d	0.5		n	3	n		Sr	Fm			n	n
MR-41	106	107	98	mt	p	C	Lr	c	m	f	m	m	1	0	0	0	0	n			n	5	n		Sr				p	f
MR-41	107	108	65	tm	p	P	Lr	c	m	f	m	m	1	0	0	0	0	d	0.5		n	4	n		Sm	Fm			p	f
MR-41	108	109	97	tm	p	C	Lr	c	m	f	m	m	1	0	0	0	0	g	0.5		n	25	n		Sr				p	f
MR-41	109	110	98	m	p	C	Lr	c	m	f	m	m	1	0	0	0	0	n			n	6	n		Sr	Fm			n	n
MR-41	110	111	98	tm	p	C	Lr;Sr	c	m	f	m	m	1	0	0	0	0	p	0.5		n	5	n		Sm	Fm			n	n
MR-41	111	112	98	mt	p	C	Lr;Sr	c	m	f	m	m	1	0	0	0	0	n			n	3	n		Sr				n	n
MR-41	112	113	98	tm	p	P	Lr;Sr	c	m	f	m	m	1	0	0	0	0	g	0.5		n	6	n		Sr	Fm			p	f
MR-41	113	114	55	tm	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	5	n		Sr				n	n
MR-41	114	115	80	tm	p	P	Lr	c	m	f	m	c	1	0	0	0	0	g	0.5		n	3	n		Sr				n	n
MR-41	115	116	95	mt	p	P	Lr	c	m	f	m	m	1	0	0	0	0	g	0.5		n	6	n		Sr	Fm			n	n
MR-41	116	117	98	tm	p	C	U	c	m	f	m	m	1	0	0	0	0	n			n	20	n		Sm;Sr				p	f
MR-41	117	118	98	tm	p	P	Lr	c	m	f	m	m	1	0	0	0	0	p	0.5		n	9	n		Sr				p	f
MR-41	118	119	98	t	p	C	Lr	c	m	f	m	m	1	0	0	0	0	n			n	8	n		Sr				p	f
MR-41	119	120	98	m	p	C	Lr	c	m	f	m	m	1	0	2	0	0	p	0.5		n	4	n		Sr		Mh		p	f
MR-41	120	121	98	mt	p	P	Lr	c	m	f	m	m	1	0	0	0	0	n			n	6	n		Sr				p	f
MR-41	121	122	98	t	p	P	Lr	c	m	f	m	m	1	0	0	0	0	p	0.5		n	2	n		Sr				p	f
MR-41	122	123	98	mt	p	P	Lr	c	m	f	m	m	1	0	0	0	0	n			n	5	n		Sr				p	f
MR-41	123	124	98	mt	p	P	Lr	c	m	f	m	c	1	0	0	0	0	g	0.5		n	6	n		Sr				p	f
MR-41	124	125	98	tm	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	1	n		Sr				n	n
MR-41	125	126	98	mt	p	P	Lr	c	m	f	m	c	1	0	0	0	0	p	0.5		n	4	n		Sr				p	f
MR-41	126	127	98	tm	m	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	10	n		Sr				p	f
MR-41	127	128	98	t	m	P	Ld	c	m	f	m	m	1	0	0	0	0	p	0.5		n	1	n		Sr;Sm				n	n
MR-41	128	129	98	tm	m	P	Lr	c	m	vf	m	m	1	0	0	0	0	n			n	1	n		Sr	Fh			n	n
MR-41	129	130	98	tm	m	P	Lr	c	m	f	m	c	1	0	0	0	0	p	0.5		n	0	n		Sr				n	n
MR-41	130	131	98	tm	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	1	n		Sr				p	f
MR-41	131	132	98	tm	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	3	n		Sr				p;p	f;n
MR-41	132	133	98	mt	m	P	Lr	c	m	f	m	c	1	0	1	0	0	n			n	2	n		Sr				p	f

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. Raw Mn.	Repl. %	Remarks
MR-41	61	62	1								
MR-41	62	63	1	fd	15	sc	0				
MR-41	63	63.8	0								missing boxes, from 63.8m to 72.4m
MR-41	72.4	73	0	fr;fr	50;50	qd;py	0;0				
MR-41	73	74	2	fr	40	y	0				
MR-41	74	75	1	ft;fr	20;40	y;qd	0;0	si	y	14	many fractures have been silicified
MR-41	75	76	0	ft;ft;ft	30;20;10	y;y;y	15;5;0				
MR-41	76	77	0	ft;fr	10;20	y;qd	0;0				
MR-41	77	78	0	ft	10	y	0				a faulted and fractured section with 5 // faults filled with clay or silicified
MR-41	78	79	0								
MR-41	79	80	0								
MR-41	80	81	0								
MR-41	81	82	0								
MR-41	82	83	0								
MR-41	83	84	0								
MR-41	84	85	0								
MR-41	85	86	0								
MR-41	86	87	0								
MR-41	87	88	0								
MR-41	88	89	0								
MR-41	89	90	0	fd	15	qd	0				
MR-41	90	91	0	fr;fr	5;15	o;qd	0;0				
MR-41	91	92	0								
MR-41	92	93	0	fr	5	o	0				
MR-41	93	94	0	fr	5	o	0				
MR-41	94	95	0								
MR-41	95	96	0	fd	10	qp	0				
MR-41	96	97	0	fr;fd	30;20	py;qd	0;0				
MR-41	97	98	0								
MR-41	98	99	0								
MR-41	99	100	0	fd	15	y	0				
MR-41	100	101	0								
MR-41	101	102	0								
MR-41	102	103	0								
MR-41	103	104	0								
MR-41	104	105	1								
MR-41	105	106	0	ft;fr	45;30	qd;y	0;0				
MR-41	106	107	1	ft	35	y	0				
MR-41	107	108	1								
MR-41	108	109	1	ft	20	qd	0				fault zone silicified, highly fractured metre-broken core
MR-41	109	110	0	fr	20	py	0				
MR-41	110	111	0	fr	50	qd	0				
MR-41	111	112	0	fr	15	qd	0				
MR-41	112	113	1								fractures have been silicified
MR-41	113	114	0	ft	20	y	0				missing core
MR-41	114	115	0	fr	5	y	0				missing core
MR-41	115	116	0								
MR-41	116	117	2	fr	15	y	0				highly fractured and pyrob. Filled
MR-41	117	118	2	fr	15	y	0				
MR-41	118	119	1								
MR-41	119	120	1								has a clay bed
MR-41	120	121	1	fr	10	qd	0				
MR-41	121	122	1								
MR-41	122	123	1	fd	15	py	0				
MR-41	123	124	1								
MR-41	124	125	0								
MR-41	125	126	1	ft	10	y	0				
MR-41	126	127	1	ft	10	y	0				
MR-41	127	128	0								
MR-41	128	129	0								7cm vf. gr. Bed
MR-41	129	130	0								
MR-41	130	131	2	fr	5	py	0				
MR-41	131	132	2								
MR-41	132	133	1								

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intract. Type	Intract. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-41	133	134	98	tm	p	C	Lr	c	m	f	f	c	2	0	0	0	0	n			n	9	n		Sr	Fr			p	f
MR-41	134	135	98	mt	p	P	Lr	c	m	f	m	c	2	0	0	0	0	p	0.5		n	10	n		Sr				p	f
MR-41	135	136	98	m	p	C	Lr	c	m	f	m	c	3	0.5	0	0	0	n			n	7	n		Sr				p	f
MR-41	136	137	98	tm	p	C	Lr	c	m	f	m	c	3	1	0	0	0	n			n	9	n		Sr				p	f
MR-41	137	138	98	mt	p	P	Lr	c	m	f	m	c	3	1	0	0	0	n			n	10	n		Sr				p	f
MR-41	138	139	98	mt	p	C	Lr	c	m	f	m	c	3	1	0.5	0	0	n			n	8	n		Sr				p	f
MR-41	139	140	98	mt	p	P	Lr	c	m	y	f	c	2	0	12	0	0	n			n	14	n		Sr	Fm	Mm		p	f
MR-41	140	141	91	tm	p	P	Lr	c	m	y	m	c	2	0	22	0	0	n			n	10	n		Sr		Mm		p	f
MR-41	141	142	90	mt	p	C	Lr	c	m	f	f	c	2	0	0	0	0	n			n	10	n			Fr			p	f
MR-41	142	143	98	mt	p	C	Lr	c	m	f	m	c	3	2	0	0	0	w	0.5		n	3	n		Sr				p	f
MR-41	143	144	98	tm	m	P	Lr	c	m	f	m	vc	4	3	0	0	0	n			n	5	n		Sr				p	f
MR-41	144	145	90	tm	p	C	Lr	c	m	f	m	c	2	0	0	0	0	n			n	6	n		Sr				p	f
MR-41	145	146	90	m	p	C	Lr	c	m	f	m	vc	4	1	0	0	0	w	1		n	10	n		Sr				p	f
MR-41	146	147	98	m	p	C	Lr	c	m	f	m	c	2	0	0	0	0	g	0.5		n	13	n		Sr				p	f
MR-41	147	148	98	m	p	C	Lr	c	m	f	m	vc	3	1	0	0	0	n			n	6	n		Sr				p	f
MR-41	148	149	94	t	p	C	Lr	c	m	f	m	vc	2	0	0	0	0	n			n	8	n		Sr				p	f
MR-41	149	150	98	mt	p	C	Lr	c	m	vf	m	vc	3	1	0	0	0	n			n	6	n		Sr				p	f
MR-41	150	151	98	tm	p	C	U	c	m	f	m	c	2	0	6	0	0	n			n	8	n		Sr				p	f
MR-41	151	152	98	tm	p	C	U	c	m	f	m	c	3	1	0	0	0	n			n	2	n		Sr				p	f
MR-41	152	153	98	m	p	C	U	c	m	f	m	vc	6	4	0	0	0	w	0.5		n	2	n		Sr				p	f
MR-41	153	154	98	m	p	C	U	c	m	f	m	g	5	8	0	0	0	n			n	1	n		Sr				p;p	f;i
MR-41	154	155	98	m	p	C	U	c	m	f	m	g	6	5	0	0	0	w	0.5		n	4	n		Sr				p	f
MR-41	155	156	98	a	p	C	Lr	c	w	f	m	g	5	7	0	0	0	n			n	8	r		Sr			Pr	p	f
MR-41	156	156.33	98	a	p	P	Lr	c	w	f	m	vc	2	0	0	0	0	n			n	7	r		Sr				p	f
MR-41	156.33	157	98	a	p	P	Lr	c	w	m	c	vc	2	0	1	0	0	n			n	4	n		Sm				p	f
MR-41	157	158	93	a	p	P	Lr	c	w	m	c	vc	2	0	0	0	0	n			n	1	n		Sm				p	f
MR-41	158	159	98	a	p	P	Lr	c	w	m	c	vc	2	0	0	0	0	n			n	3	n		Sm				p	f
MR-41	159	160	98	a	p	P	Lr	c	w	m	c	vc	2	0	0	0	0	n			n	0	n		Sm				n	n
MR-41	160	161	98	a	p	P	Lr	c	w	m	c	vc	2	0	0	0	0	n		Bn	d	0	n		Sr				n	n
MR-41	161	162	98	a	p	P	Lr	c	w	m	c	vc	4	2	0	0	0	n		Bn	d	6	n		Sr				p	f
MR-41	162	163	98	a	p	P	Lr	c	w	m	c	c	9	1	0	0	0	n		Bn	d	11	n		Sl				p	f
MR-41	163	164	98	a	m	P;M	M	c	m	m	c	c	4	1	0	0	0	n		Bn	d	1	n		Sm				n	n
MR-41	164	165	95	a	m	M;P;Gn	M	c	w	m	c	vc	13	4	0	0	0	n			n	3	n		Sm				n	n
MR-41	165	166	68	a	m	P;Gn;M	M	c	w	m	c	c	3	0.5	0	0	0	n			n	3	n		Sm				p	f
MR-41	166	167	88	a	d	Pu;P	M	c	w	m	c	c	2	0	0	0	0	n			n	4	n		Sm				n	n
MR-41	167	168	98	a	d	R;M	B	c	n	y	y	vc	2	0	65	0	0	n			n	2	c		Sm		Mh		n	n
MR-41	168	169	98	a	d	M;R;Gn	M	c	w	y	c	vc	10	2	7	0	0	n			n	1	n		Sm	Fh	Mm		n	n
MR-41	169	170	98	a	p	P;Gn	M	c	w	y	c	g	11	4	13	0	0	n			n	2	n		Sm				n	n
MR-41	170	171	98	a	m	P;Gn	M	c	w	m	c	g	12	7	0	0	0	n			n	0	n		Sm				n	n
MR-41	171	172	98	a	p	P;Pu;Gn	M	c	w	m	c	g	16	10	0	0	0	n			n	0	n		Sm				n	n
MR-41	172	173	82	a	p	P;M;Gn	M	c	w	m	c	ps	29	18	0	0	0	n			n	3	n		Sm			Pm	n	n
MR-41	173	174	95	a	m	P;Gn;M	M	c	w	c	vc	pm	22	30	0	0	0	n			n	2	n	Gh	Sm			Pm	n	n
MR-41	174	175	72	a	d	Pu;P	M	c	w	m	c	ps	30	10	0	0	0	n			n	1	n	Gm	Sm				n	n
MR-41	175	176	92	a	m	M;P	M	c	w	m	c	ps	9	9	0	0	0	n			n	3	n		Sm			Pm	n	n
MR-41	176	177	98	a	m	M;P	M	c	w	m	c	ps	12	8	0	0	0	d	0.5		n	0	n	Gh	Sm				n	n
MR-41	177	178	98	a	m	M;P	M	c	w	c	vc	ps	10	11	0	0	0	n			n	0	n	Gm	Sm				n	n
MR-41	178	179	98	a	m	P;M	M	c	w	c	vc	ps	57	11	0	0	0	n			n	1	n	Gh	Sm				n	n
MR-41	179	180	92	a	m	Pu;P;Bn	M	c	w	s	c	ps	16	16	8	0	0	d	1		n	0	n		Sm			Pm	n	n
MR-41	180	181	98	a	m	M;P	M	c	w	m	c	pm	23	15	0	0	0	n			n	1	n	Gh	Sm			Pm	n	n
MR-41	181	182	82	a	d	M	U	c	w	m	c	ps	22	16	0	0	0	n			n	3	n	Gh	Sm			Pm	n	n
MR-41	182	183	98	a	m	M;P	M	c	w	f	vc	ps	35	10	0	0	0	n			n	2	n	Gh		Fh		Pm	n	n
MR-41	183	184	98	a	d	M;P	F	c	w	m	c	ps	15	7	0	0	0	n			n	2	n		Sm			Pm	p	f
MR-41	184	185	85	a	m	P;M	M	c	w	c	vc	g	15	7	0	0	0	n			n	2	n		Sm			Pm	p	f
MR-41	185	186	98	a	m	Pu;P	M	c	w	m	c	g	13	7	0	0	0	n			n	2	n		Sm			Pm	p	f
MR-41	186	187	98	a	m	P;M;Gn	M	c	w	m	c	ps	30	15	0	0	0	n			n	3	n	Gh	Sm			Pm	p	f
MR-41	187	188	98	a	p	P	U	c	w	m	c	ps	12	15	0	0	0	n			n	0	n		Sm			Pm	n	n
MR-41	188	189	98	a	p	P;Pu	B	c	w	m	c	g	9	6	0	0	0	n			n	4	n		Sm				p	f
MR-41	189	190	98	a	p	P;Pu;Gn	M	c	w	m	c	vc	20	4	0	0	0	n			n	3	n		Sm				p	f
MR-41	190	191	98	a	m	P;Pu	M	c	w	m	c	g	70	15	0	0	0	n			n	1	n	Gm	Sm				p	f
MR-41	191	192	98	a	m	M;P	M	c	w	m	ps	c	22	7	0	0	0	n			n	3	n		Sm			Pm	p	f
MR-41	192	193	98	a	m	M;P	M	c	w	m	c	vc	10	2	0	0	0	n			n	0	n		Sm				n	n
MR-41	193	194	94	a	p	P;Gn	M	c	w	c	vc	g	26	12	0	0	0	n			n	0	n		Sm			Pm	n	n
MR-41	194	194.42	98	a	p	P	U	c	w	c	vc	ps	15	30	0	0	0	n			n	1	n	Gm	Sm				p	f
MR-43	33	34	97	t	p	P	U	c	w	f	f	c	4	0	0	0	0	n			n	0	n		Sr	Fr			p	i

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-41	133	134	2								
MR-41	134	135	1	fr	5	py	0				
MR-41	135	136	1	fd	5	y	0				
MR-41	136	137	1								4cm vf grained bed
MR-41	137	138	1	fr	15	y	0				2cm vf grained bed
MR-41	138	139	1	ft	35	ss	240				silicified fault zone
MR-41	139	140	1	ft;ft;ft	45;40;10	y;y;y	80;4;40				
MR-41	140	141	1	ft;ft	20;10	y;qd	220;10				highly fractured, broken core
MR-41	141	142	1								highly fractured and broken core at top
MR-41	142	143	1								
MR-41	143	144	1	fd;fr	10;30	py;qd	0;0				
MR-41	144	145	1								
MR-41	145	146	1								
MR-41	146	147	1								
MR-41	147	148	1	fr	30	y	0				
MR-41	148	149	1	fr	15	y	0				
MR-41	149	150	1	fr	10	y	0				
MR-41	150	151	1	ft	20	y	60				
MR-41	151	152	1								
MR-41	152	153	1								start to see granule beds
MR-41	153	154	2								
MR-41	154	155	1	ft;fr	20;10	y;qd	0;0				
MR-41	155	156	1	fr	15;0	qd;y	0;0				interbedded f.-med. gr. beds with vc.-granule grained beds, can see good trough cross bedding between them
MR-41	156	156.33	1								base is FP/MF contact, below is c. gr. ss. with no obvious bedding, above is med. and c. gr. ss. interbedded with trough x-bedding - no sharp contact
MR-41	156.33	157	1								many clay drapes throughout
MR-41	157	158	1								
MR-41	158	159	1	ft	5	y	3				
MR-41	159	160	0								
MR-41	160	161	0								
MR-41	161	162	1	ft	20	y	4				
MR-41	162	163	1	ft	20	y	4				a fracture/fault zone at top
MR-41	163	164	0	fd	5		0				
MR-41	164	165	0								
MR-41	165	166	1	fr	20	qd	0				
MR-41	166	167	0	fr	10	h	0				
MR-41	167	168	0					fo;ms	y;y	10;10	red clay at base (possible replacement), maroon clay bed into a rip up clay bed?, into green/red clay? Bed, into replacement red clay within a fault zone
MR-41	168	169	0	fr	50	y	0				a red clay bed at top, fine grained red bed leads into it
MR-41	169	170	0	ft;ft	40;50	y;y	80;50				2 large clay filled faults
MR-41	170	171	0								
MR-41	171	172	0								
MR-41	172	173	0	ft	5		0				
MR-41	173	174	0	ft	50	y	0				
MR-41	174	175	0	fr	10		0				
MR-41	175	176	0	ft;ft	40;40	y;y	2;0				
MR-41	176	177	0								
MR-41	177	178	0								
MR-41	178	179	0	ft	30	y	0				
MR-41	179	180	0								
MR-41	180	181	0								
MR-41	181	182	0	ft	30	y	0				
MR-41	182	183	0	ft	30	y	0				
MR-41	183	184	1								
MR-41	184	185	1	fr	70	py	0				
MR-41	185	186	1	fr	40	py	0				
MR-41	186	187	1	fr	85	py	0				
MR-41	187	188	0								
MR-41	188	189	1	fr	85	py	0				
MR-41	189	190	1	fr	80	py	0				
MR-41	190	191	1								
MR-41	191	192	1								
MR-41	192	193	0								
MR-41	193	194	0								
MR-41	194	194.42	1								base is FP/regolith contact, sharp, ss. sitting on regolith
MR-43	33	34	3								

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSSG Grain Size	PSSS Grain Size	PSSF Grain Size	PSSM Grain Size	PSSP Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-43	34	35	98	t	p	P;Y	Lr	c	w	f	m	vc	2	0	0	0	0	n		Bk;Bk	l;d	1	n		Sr				n	n
MR-43	35	36	98	tm	p	C	Lr	c	w	f	m	c	2	0	0	0	0	n		Bk;Bk	l;d	1	n		Sr				p	i
MR-43	36	37	98	tm	p	P	Lr	c	m	f	m	vc	5	0	0	0	0	n		Bk;Bk	l;d	1	n		Sr				p	i
MR-43	37	38	97	t	p	C	Lr	c	m	f	m	c	2	0	0	0	0	n		Bk;Bk	d;l	0	n		Sr	Fr			p	i
MR-43	38	39	98	tm	p	P	Lr	c	m	f	m	c	2	0	0	0	0	n		Bk;Bk	l;d	0	n		Sr	Fm			n	n
MR-43	39	40	95	mt	p	C	Ld	c	m	vf	m	c	7	0	0	0	0	w	0.5	Bk	l	0	f		Sr	Fm			n	n
MR-43	40	41	88	t	p	C	Lr	c	m	f	m	c	4	0	0	0	0	w	0.5		n	0	n		Sr				p	i
MR-43	41	42	98	tm	p	P	Lr;Sr	c	m	f	m	vc	6	1	0	0	0	n		Bn	d	0	r		Sr				p	i
MR-43	42	43	97	m	p	P	Lr;Sr	c	m	f	m	vc	9	1	0	0	0	n		Bk	d	1	s		Sr				p	i
MR-43	43	44	98	t	p	P	Ld	c	m	f	m	vc	3	0	0	0	0	n		Bk	d	0	r		Sr	Fr			p	f
MR-43	44	45	98	tm	p	C	Ld	c	m	f	m	c	4	1	0	0	0	n		Bk	d	0	s		Sr	Fm			n	n
MR-43	45	46	96	tm	p	P	Lr;Sr	c	m	f	m	g	10	3	0	0	0	n			n	1	c		Sr	Fl			n	n
MR-43	46	47	96	m	m	P	Lr	c	m	f	m	vc	16	3	0	0	0	n			n	2	n		Sr				n	n
MR-43	47	48	98	m	m	P	Lr	c	m	f	m	vc	18	3	0	0	0	n			n	3	n		Sr				p	f
MR-43	48	49	98	tm	m	P	Lr	c	m	f	m	vc	18	3	0	0	0	g	0.5	Bn	l	2	n		Sm	Fr			p;p	i;f
MR-43	49	50	98	mt	m	P	Lr	c	m	m	c	g	10	3	0	0	0	n			n	0	s		Sr;Sm				p	i
MR-43	50	51	98	tm	m	P;Pu	M	c	m	vf	c	g	8	4	0	0	0	n			n	3	r		Sl	Fh		Pr	p	i
MR-43	51	52	97	mt	m	P;M	B	c	m	vf	f	c	2	0	0	0	0	n			n	3	r		Sr	Fh			n	n
MR-43	52	53	96	m	m	P;M	Ld	c	m	f	c	vc	9	4	0	0	0	n			n	1	n		Sr				p	f
MR-43	53	54	97	m	m	P;R	Ld;Sr	c	m	vf	m	g	18	7	0	0	0	d	0.5		n	1	n		Sl			Pl	p	i
MR-43	54	54.49	99	mt	m	P	Lr	c	m	vf	f	c	14	1	0	0	0	d	0.5		n	1	r			Fr;Fh			n	n
MR-43	54.49	55	98	mt	m	P	Ld	c	m	f	m	c	9	2	0	0	0	n			n	0	n		Sm;Sr				n	n
MR-43	55	56	99	tm	p	C	Lr	c	m	f	m	vc	10	1	0	0	0	n		Bn	d	2	n		Sr	Fr			n	n
MR-43	56	57	98	m	p	P;Pu	M	c	m	f	m	c	1	0	0	0	0	g	0.5	Bn	d	0	n		Sr				n	n
MR-43	57	58	98	t	p	C	Lr	c	m	f	f	c	1	0	0	0	0	p	0.5		n	0	n			Fr			n	n
MR-43	58	59	97	t	p	P	Lr	c	m	f	m	c	1	0	0	0	0	g	0.5	Bn	d	0	n		St;Sr	Fm			n	n
MR-43	59	60	98	tm	p	P	Lr	c	m	f	m	c	1	0	0	0	0	w;g	0.5		n	1	c		Sr	Fl			n	n
MR-43	60	61	98	t	p	P	Lr	c	m	f	f	c	1	0	0	0	0	g	0.5		n	1	n			Fm;Fr			n	n
MR-43	61	62	93	tm	p	P	Lr	c	m	f	f	c	1	0	0	0	0	d;g	0.5		n	3	r			Ft;Fr			n	n
MR-43	62	63	98	tm	m	C	Lr	c	m	f	f	c	1	0	0	0	0	g	0.5		n	2	c			Ft;Fr			n	n
MR-43	63	64	98	tm	m	P	Lr	c	m	f	m	c	1	0	0	0	0	g;d	1		n	1	c		Sr;S?				p	f
MR-43	64	65	99	mt	p	P	Lr;Sr	c	m	f	f	c	1	0	0	0	0	g	0.5		n	0	n		Sl	Fr			n	n
MR-43	65	66	98	tm	m	P	Lr	c	m	f	m	c	1	0	0	0	0	p;g	0.5		n	3	n		St;Sr	Fm			n	n
MR-43	66	67	98	tm	m	P	Lr	c	m	f	m	c	1	0	0	0	0	p	0.5		n	1	n		S?;Sm;Sl				n	n
MR-43	67	68	98	mt	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	2	n		Sr;Sl				n	n
MR-43	68	69	98	m	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	1	n		St;Sr				n	n
MR-43	69	70	98	m	p	P	Lr	c	m	f	f	c	1	0	0	0	0	p;g	0.5		n	0	c			Fr;Fl			n	n
MR-43	70	71	97	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	g	0.5		n	2	c		St;Sr				n	n
MR-43	71	72	98	tm	p	C	Lr	c	m	f	f	c	1	0	0	0	0	g;p	0.5		n	3	n		Sr	Fl			n	n
MR-43	72	73	98	mt	p	P	Lr	c	m	f	f	c	1	0	0	0	0	g	0.5		n	3	n			Ft;Fr			n	n
MR-43	73	74	98	tm	p	C	U	c	m	f	f	c	1	0	0	0	0	n			n	15	c			F?			n	n
MR-43	74	75	97	tm	p	C	U	c	m	f	f	c	1	0	0	0	0	p	0.5		n	15	n			Ft;F?			p	f
MR-43	75	76	98	mt	p	C	U	c	m	f	f	c	1	0	0	0	0	n			n	6	c			Fl			n	n
MR-43	76	77	93	mt	p	C	Lr	c	m	f	m	c	2	0	0	0	0	n			n	2	r		Sr;Sl				n	n
MR-43	77	78	98	tm	p	C	U	c	m	f	m	c	2	0	0	0	0	w	0.5		n	0	sl		Sr	Fm			n	n
MR-43	78	79	98	mt	p	C	U	c	m	f	m	c	2	0	0	0	0	n			n	4	n		Sr				n	n
MR-43	79	80	98	mt	p	C	U	c	s	f	m	c	1	0	0	0	0	g	0.5		n	7	n		Sr;S?				n	n
MR-43	80	81	97	tm	p	C	U	c	s	f	f	c	1	0	0	0	0	g	0.5		n	9	n			Fr			n	n
MR-43	81	82	98	tm	p	C	Lr	c	s	f	m	c	1	0	0	0	0	d	0.5		n	8	n		Sr				n	n
MR-43	82	83	97	mt	p	C	Lr	c	m	f	f	c	1	0	0	0	0	n			n	6	n		Sr	Fl			n	n
MR-43	83	84	97	tm	p	C	Lr	c	m	f	f	c	1	0	0	0	0	n			n	6	n		Sr	Fl			n	n
MR-43	84	85	98	tm	p	C	Lr	c	m	f	f	m	1	0	0	0	0	n			n	1	n			Fr			n	n
MR-43	85	86	99	mt	p	C	Lr;Sr	c	m	f	m	c	1	0	0	0	0	p	0.5		n	2	n		Sr				n	n
MR-43	86	87	98	mt	p	C	Lr;Sr	c	m	f	m	c	1	0	0	0	0	g	0.5		n	1	c		Sr;Sl;Sm				n	n
MR-43	87	88	98	tm	p	C	Lr	c	m	f	m	vc	2	0	0	0	0	d	0.5		n	7	n		Sr;Sl				n	n
MR-43	88	89	98	tm	p	C	Lr	c	m	f	f	c	1	0	0	0	0	n			n	8	n		Sr	Fm;Fl			n	n
MR-43	89	90	97	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	p	0.5		n	12	n		Sr				n	n
MR-43	90	91	97	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	g	0.5		n	20	n		Sr;S?				n	n
MR-43	91	92	97	t	p	C	Lr	c	m	f	m	vc	2	0	0	0	0	d	0.5		n	15	n		Sr				n	n
MR-43	92	93	97	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	g	0.5		n	11	n		Sr				n	n
MR-43	93	94	98	tm	p	C	Lr	c	m	f	m	c	2	0	0	0	0	n			n	15	n		Sr				n	n
MR-43	94	95	98	t	p	C	U	c	m	f	f	c	1	0	0	0	0	n			n	8	r			Fr			n	n
MR-43	95	96	98	mt	p	C	U	c	m	f	f	m	1	0	0	0	0	n			n	15	n			Fr;F?			n	n
MR-43	96	97	97	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	g	0.5		n	15	n		Sr;Sl				n	n

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-43	34	35	0								heavy mineral banding
MR-43	35	36	1								heavy mineral banding
MR-43	36	37	14								heavy mineral banding
MR-43	37	38	7								
MR-43	38	39	0								
MR-43	39	40	0								contains a rip-up clast or flame structure? at 39.44m
MR-43	40	41	2								
MR-43	41	42	4								first appearance of pebble beds
MR-43	42	43	1								overturned bedding?-coarser clast in a finer matrix?
MR-43	43	44	1								
MR-43	44	45	0								
MR-43	45	46	0								
MR-43	46	47	0								pebble bed
MR-43	47	48	1	fr	10	qd	0				
MR-43	48	49	12								
MR-43	49	50	12								
MR-43	50	51	2	fr	45	y	0				vf. grained ss. bed at base (16cm)
MR-43	51	52	0								vf. grained ss. bed at top (70cm)
MR-43	52	53	1								
MR-43	53	54	7								vc. beds interbedded with vf. beds and med. gr. Beds
MR-43	54	54.49	0								1 layer pebble lag at base (MF/LzL contact), above lag is fine grained ss., below is med.-c. grained bed
MR-43	54.49	55	0								
MR-43	55	56	0								
MR-43	56	57	0								
MR-43	57	58	0								
MR-43	58	59	0								
MR-43	59	60	0	fr	20	y	0				
MR-43	60	61	0								
MR-43	61	62	0								clay drapes along bedding
MR-43	62	63	0								
MR-43	63	64	1								clay drapes along bedding
MR-43	64	65	0								
MR-43	65	66	0	fd	30	y	0				
MR-43	66	67	0								
MR-43	67	68	0								
MR-43	68	69	0								
MR-43	69	70	0								
MR-43	70	71	0	fr	30	py	0				
MR-43	71	72	0	fr	30	y	0				
MR-43	72	73	0								
MR-43	73	74	0	ft	20	su	8				large fault, highly fractured & broken core
MR-43	74	75	1								highly fractured & broken core
MR-43	75	76	0	fr	20	y	0				
MR-43	76	77	0	fd,ft	30,30	sc	0,30				
MR-43	77	78	0								
MR-43	78	79	0	fr,fd	30,10	s	0,0				
MR-43	79	80	0	ft,fr	20,10	qo	0,0				many fractures-silicified
MR-43	80	81	0	fr,fr	2,10	qd,qo	0,0				highly fractured-silicified
MR-43	81	82	0	fd,fr	5,10	qd	0,0				
MR-43	82	83	0	fr,fr	40,20	s,qd	0,0				
MR-43	83	84	0								
MR-43	84	85	0								
MR-43	85	86	0								
MR-43	86	87	0								
MR-43	87	88	0	fr,fr	20,20	py,y	0,0				
MR-43	88	89	0	fa,fa	45,10	y	0,0				there are 4 strike-slip faults with slickensides-core large
MR-43	89	90	0	fa,fr	20,20	qd	0,0				broken core, and have a strike-slip fault with slickensides
MR-43	90	91	0								highly fractured & broken core
MR-43	91	92	0	fr,fd	10,30	qd	0,0				highly fractured & broken core
MR-43	92	93	0	fr	20	qd	0				highly fractured-many filled with drusy quartz and pyrite
MR-43	93	94	0	fr,fr,fr	20,45,20	qo,s,qd	0,0,0				highly fractured, brecciated fault zone- silicified
MR-43	94	95	0	ft	0	qo	0				brecciated faulted/fractured area that has been silicified
MR-43	95	96	0	fd,fr,ft	40,60,1	s,qo	0,0,0				brecciated fault-silicified
MR-43	96	97	0	ft,fr	20,10	qo,qd	0,0				

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSSG Grain Size	PSSS Grain Size	PSSF Grain Size	PSSM Grain Size	PSSP Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-43	97	98	98	t	p	C	Lr	c	m	f	f	c	1	0	0	0	0	n			n	10	n			Fr			n	n
MR-43	98	99	98	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	11	n		Sr;Sm				n	n
MR-43	99	100	98	tm	p	C	Lr	c	m	f	f	m	1	0	0	0	0	n			n	8	n			Fr;Fm			n	n
MR-43	100	101	97	tm	p	C	Lr	c	m	f	f	c	1	0	0	0	0	n			n	8	n			Fr;Fm			n	n
MR-43	101	102	96	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	20	n		Sr				n	n
MR-43	102	103	96	tm	p	C	Lr	c	m	f	m	c	3	0	0	0	0	n			n	7	n		Sr				n	n
MR-43	103	104	94	mt	p	C	Lr	c	m	f	m	c	4	0	0	0	0	n			n	10	n		Sr				n	n
MR-43	104	105	98	mt	p	C	Lr	c	m	f	f	m	1	0	0	0	0	n		Bn	l	2	n		Sr	Fm			n	n
MR-43	105	106	98	tm	p	C	Sr	c	m	f	m	c	1	0	0	0	0	w	0.5		n	6	n		Sr				n	n
MR-43	106	107	95	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0			Bk	d	10	n		Sr				p	f
MR-43	107	108	97	tm	p	C	Lr	c	m	f	m	m	1	0	0	0	0	n		Bk	d	9	n		Sr	Fr			p	f
MR-43	108	109	98	tm	p	C	Lr	c	m	f	f	c	1	0	0	0	0	p	0.5		n	9	n		Sr				p	f
MR-43	109	110	98	t	p	C	Lr	c	m	f	f	m	1	0	0	0	0	p	0.5		n	7	n			Fl;Fm			p	f
MR-43	110	111	97	mt	p	C	U	c	m	f	f	m	1	0	0	0	0	n			n	20	n			Fr			p	f
MR-43	111	112	97	mt	p	C	Lr	c	m	f	m	m	1	0	0	0	0	n			n	25	n		Sm;Sr				p	f
MR-43	112	113	97	tm	p	C	U	c	m	f	f	m	1	0	0	0	0	n			n	20	n			Fm;Fr			p	f
MR-43	113	114	97	t	p	C	Lr	c	m	f	m	m	1	0	0	0	0	g	0.5		n	25	n		Sr				p	f
MR-43	114	115	97	tm	p	C	U	c	m	f	m	m	1	0	0	0	0	n			n	25	n		Sr;Sm				p	f
MR-43	115	116	95	mt	p	C	Lr	c	m	f	m	m	1	0	0	0	0	d	0.5		n	25	n		Sr				p	f
MR-43	116	117	98	tm	p	C	Lr	c	m	f	m	m	1	0	0	0	0	g	0.5		n	25	n		Sr				p	f
MR-43	117	118	97	t	p	C	Sr	c	m	f	f	m	1	0	0	0	0	n			n	25	n			Fl;Fr			p	f
MR-43	118	119	97	t	p	C	Lr	c	m	f	m	m	1	0	0	0	0	n			n	25	n			Fm;Fr			p	f
MR-43	119	120	98	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	p	0.5		n	20	n		Sm;Sr				p	f
MR-43	120	121	98	tm	p	P	Lr	c	m	f	m	c	1	0	0	0	0	g	0.5		n	10	n		Sr				p	f
MR-43	121	122	98	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	12	n		Sr;Sl				p	f
MR-43	122	123	97	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	p	0.5		n	20	n		Sr				p	f
MR-43	123	124	96	m	p	C	Lr	c	m	f	m	c	1	0	0	0	0	g	0.5		n	10	n		Sr				p	f
MR-43	124	125	96	mt	p	P	Lr	c	m	f	m	c	1	0	0	0	0	p	0.5		n	20	n		Sr				p	f
MR-43	125	126	90	tm	p	P	U	c	m	f	m	c	1	0	0	0	0	n			n	20	n		Sm;Sr				p	f
MR-43	126	127	90	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	20	n		Sm;Sr				p	f
MR-43	127	128	96	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	d	0.5		n	25	n		Sr;Sm				p	f
MR-43	128	129	95	tm	p	P	Lr	c	m	f	m	c	1	0	0	0	0	p	0.5		n	25	n		Sr				p	f
MR-43	129	130	97	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	25	n		Sm;Sr				p	f
MR-43	130	131	97	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	w	1		n	9	n		Sr	Fr			p	f
MR-43	131	132	98	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	g	0.5		n	20	n		S?;Sr				p	f
MR-43	132	133	98	t	p	C	Lr	c	m	f	m	c	2	0	0	0	0	p	0.5		n	10	n		Sr;Sm				p	f
MR-43	133	134	98	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	20	n		Sr				p	f
MR-43	134	135	97	tm	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	20	n		Sr				p	f
MR-43	135	136	98	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	g	0.5		n	7	n		Sr	Fm			p	f
MR-43	136	137	99	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	w;d	0.5		n	5	n		Sr;Sm				p	f
MR-43	137	138	98	tm	p	C	Lr	c	m	f	m	c	3	0	0	0	0	d	0.5		n	9	n		Sr;Sm				p	f
MR-43	138	139	98	tm	p	C	Lr	c	m	f	m	c	2	0	0	0	0	d	0.5		n	11	n		Sr;Sm				p	f
MR-43	139	140	98	mt	p	C	Lr	c	m	vf	m	c	3	1	0	0	0	w	0.5		n	13	n		Sr	Fr			p	f
MR-43	140	141	98	t	p	C	Lr	c	m	f	m	c	2	0	0	0	0	n			n	9	n		Sr				p	f
MR-43	141	142	97	tm	p	C	Lr	c	m	f	m	c	2	0	0	0	0	n			n	15	n		Sr				p	f
MR-43	142	143	88	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	8	n		Sr				p	f
MR-43	143	144	98	tm	p	C	Lr	c	m	f	c	c	3	1	0	0	0	n			n	4	n		Sr				p	f
MR-43	144	145	98	tm	p	C	Lr	c	m	vf	c	c	2	0	0	0	0	n			n	3	n		Sr	Fh			p	f
MR-43	145	146	96	mt	p	C	Lr	c	m	m	c	c	2	0	0	0	0	n			n	8	n		Sr				p	f
MR-43	146	147	98	mt	m	C	Lr	c	m	m	c	vc	2	0	0	0	0	n			n	5	n		Sr				p	f
MR-43	147	148	98	mt	m	P	Ld	c	m	f	c	c	2	0	0	0	0	w	1		n	3	n		Sr				p	f
MR-43	148	149	98	mt	m	P	Ld	c	m	f	m	vc	4	1	0	0	0	n			n	4	n		Sr				p	f
MR-43	149	150	98	tm	p	C	Lr	c	m	f	m	vc	3	1	0	0	0	d	0.5		n	5	n		Sr				p	f
MR-43	150	151	98	tm	p	C	Lr	c	m	f	m	vc	4	1	1	0	0	n			n	8	n		Sr				p	f
MR-43	151	152	97	mt	p	P	Lr	c	m	f	m	vc	4	1	0	0	0	n			n	15	n		Sr;Sm				p	f
MR-43	152	153	97	tm	p	C	Lr	c	m	s	m	c	1	0	8	0	0	n			n	5	n		Sr		Mh		p	f
MR-43	153	154	98	mt	p	C	Lr	c	m	f	m	vc	2	0	0	0	0	d	0.5		n	14	n		Sr				p	f
MR-43	154	155	85	tm	p	C	Lr	c	m	f	m	vc	2	0	0	0	0	n			n	10	n		Sr				p	f
MR-43	155	156	98	tm	p	C	U	c	m	f	m	c	3	0	0	0	0	p	0.5		n	15	n		Sr				p	f
MR-43	156	157	80	mt	p	C	U	c	m	f	m	c	3	0	0	0	0	n			n	20	s		Sr				p	f
MR-43	157	158	95	mt	p	C	U	c	w	y	m	c	2	0	15	0	0	n			n	25	n		S?				p	f
MR-43	158	159	97	mt	p	C	U	v	w	m	m	vc	3	1	0	0	0	n			n	30	n		S?				p	f
MR-43	159	160	98	mt	p	C	U	v	w	m	c	vc	6	2	0	0	0	n			n	25	n		S?				p	f
MR-43	160	161	97	m	p	C	U	v	w	m	c	vc	5	2	5	0	0	n			n		n		S?				p	f

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-43	97	98	0	ft;fr;fr	0;10;30	qo;py;qd	0;0;0				brecciated fault-silicified
MR-43	98	99	0	fr	40	qo	0				
MR-43	99	100	0								
MR-43	100	101	0	ft;fr	20;70	qo;qd	0;0				
MR-43	101	102	0								highly fractured & broken core
MR-43	102	103	0	fr	20	y	0				
MR-43	103	104	0	fr	50	py	0				
MR-43	104	105	0	fr	15	py	0				
MR-43	105	106	0	fr	10	py	0				
MR-43	106	107	1	fd;fr	20;10	qd;py	0;0				
MR-43	107	108	1	fd;fr	20;30	qd;py	0;0				
MR-43	108	109	1								
MR-43	109	110	1								
MR-43	110	111	2	fr	10	qd	0				
MR-43	111	112	1	ft	20	y	10				highly fractured & broken core
MR-43	112	113	1	ft	30	y	0				highly fractured & broken core
MR-43	113	114	1	ft;ft	30;45	y;y	8;2				see clay filled faults, highly fractured & broken core
MR-43	114	115	1	ft	40	y	20				clay filled fault zone running through, highly fractured & broken core
MR-43	115	116	1	ft	10	y	2				highly fractured & broken core
MR-43	116	117	1								highly fractured & broken core
MR-43	117	118	1	ft;fr	10;5	y;qd	6;0				highly fractured & broken core
MR-43	118	119	1								highly fractured & broken core
MR-43	119	120	1	ft	0	qo	0				fault? zone silicified
MR-43	120	121	1								
MR-43	121	122	1								
MR-43	122	123	1	ft	0	qo	0				fault zone-silicified
MR-43	123	124	1	fr	20	qd	0				
MR-43	124	125	1								broken core
MR-43	125	126	1	ft	10	sc	30				large fault, broken core
MR-43	126	127	1								highly fractured & broken core
MR-43	127	128	1								highly fractured & broken core
MR-43	128	129	1	ft	45	y	0				highly fractured & broken core
MR-43	129	130	1								highly fractured & broken core
MR-43	130	131	1	fr	30	qd	0				
MR-43	131	132	1	ft	10	sc	40				silicified fault zone running through metre
MR-43	132	133	1								
MR-43	133	134	1								highly fractured
MR-43	134	135	1								highly fractured & broken core
MR-43	135	136	1								
MR-43	136	137	1								
MR-43	137	138	1	fd;ft	10;20	y;y	0;0				
MR-43	138	139	1								
MR-43	139	140	1	fd	20	y	0				
MR-43	140	141	1								
MR-43	141	142	1	ft;ft	10;45	y;su	0;0				
MR-43	142	143	1								
MR-43	143	144	1								
MR-43	144	145	1								
MR-43	145	146	1								
MR-43	146	147	1								clay drapes
MR-43	147	148	1								
MR-43	148	149	1								
MR-43	149	150	1								
MR-43	150	151	1								
MR-43	151	152	1	ft	60	y	0				
MR-43	152	153	1								
MR-43	153	154	1								
MR-43	154	155	1								
MR-43	155	156	1	ft	20	y	0				
MR-43	156	157	1					ms	y	20	bottom 20 cm is replaced by clay and sand
MR-43	157	158	1	ft	0	y	60				large fault zone with clay and silicified fractures, highly fractured & broken core
MR-43	158	159	1	ft	0	y	0				large fault zone, has been highly fractured and broken, core has no competence
MR-43	159	160	3	ft	0	y	0				large fault zone, has been highly fractured and broken, core has no competence
MR-43	160	161	1	ft	0	y	0				large fault zone, has been highly fractured and broken, core has no competence

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Darkness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSSG Grain Size	PSSS Grain Size	PSSF Grain Size	PSSM Grain Size	PSSP Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-43	161	162	97	tm	p	C	Lr	c	w	y	c	c	2	0	0	0	0	n			n	9	n		Sr				p	f
MR-43	162	163	97	mt	p	P	Lr	c	w	f	m	c	2	0	0	0	0	n			n	8	n		Sr				p	f
MR-43	163	164	98	m	p	C	Lr	c	w	m	m	c	2	0	0	0	0	n			n	9	n		Sr				p	f
MR-43	164	165	97	m	p	C	U	e	w	m	m	c	2	0	0	0	0	n			n	25	n		S?				p	f
MR-43	165	166	92	m	p	C	U	f	w	m	m	c	2	0	0	0	0	n			n	20	n		S?				p	f
MR-43	166	167	97	m	p	C	U	f	w	m	c	c	2	0	0	0	0	n			n	20	n		S?				p	i
MR-43	167	168	95	mt	p	C	U	f	w	m	m	c	2	0	0	0	0	n			n	20	n		S?				p	f
MR-43	168	169	97	mt	p	C	U	c	w	m	c	c	2	0	0	0	0	n			n	11	n		Sr				p	f
MR-43	169	170	30	m	p	C	U	c	m	f	m	c	13	0	0	0	0	n			n	1	n		Sr				n	n
MR-43	170	171	98	mt	p	C	U	c	m	f	m	c	2	0	0	0	0	n			n	11	n		Sr				n	n
MR-43	171	172	90	m	p	C	U	c	m	f	m	c	3	1	0	0	0	n			n	12	n		Sr				p	f
MR-43	172	172.15	99	m	m	P;Pu	M	c	m	m	c	c	2	1	0	0	0	n			n	0	n		S?				n	n
MR-43	172.15	173	98	a	m	P;Pu;Gn	M	c	w	y	m	c	2	0	18	0	0	n			n	9	n		Sm		Mh		n	n
MR-43	173	174	95	a	d	Pu;Gn	M	c	w	y	c	vc	3	1	0	0	0	n			n	6	n		Sm				n	n
MR-43	174	175	98	a	d	Pu;Gn	M	c	w	m	c	g	3	6	0	0	0	n			n	3	n		Sm				n	n
MR-43	175	176	97	a	d	Pu;P	M	c	w	m	c	g	13	10	0	0	0	n			n	4	n		Sm				n	n
MR-43	176	177	98	a	m	Gn;P	M	c	w	y	c	g	5	4	0	0	0	n			n	3	n		Sm	Fm	Mm		n	n
MR-43	177	178	98	a	m	Gn;C	M	c	w	y	m	vc	15	2	0	0	0	n			n	6	n		Sm		Mm		n	n
MR-43	178	179	98	a	p	Gn;C	M	c	w	m	c	g	18	12	2	0	0	n			n	4	n		Sm				n	n
MR-43	179	180	98	a	p	Gn;P	M	c	w	m	c	ps	13	15	1	0	0	n			n	2	n		Sm				n	n
MR-43	180	181	98	a	m	Gn;P	M	c	w	y	c	ps	7	15	0	0	0	n			n	4	n		Sm		Mm		n	n
MR-43	181	182	98	a	m	Gn;P	M	c	m	y	c	pm	15	15	0	0	0	n			n	5	n		Sm		Mm		n	n
MR-43	182	183	98	a	p	P	B	c	w	m	vc	pm	45	38	0	0	0	n			n	2	n		Sm			Pl	n	n
MR-43	183	184	98	a	m	P;Gn	M	c	w	m	vc	ps	10	30	0	0	0	n			n	3	n		Sm			Pm	n	n
MR-43	184	185	98	a	p	P	B	c	w	c	vc	ps	15	25	0	0	0	n			n	4	n		Sm			Pm	n	n
MR-43	185	186	97	a	m	P	B	c	w	vf	c	g	9	13	0	0	0	n			n	6	n		Sm				n	n
MR-43	186	187	98	a	m	P;Gn	M	c	w	m	c	ps	10	11	0	0	0	n			n	2	n		Sm			Pm	n	n
MR-43	187	188	94	a	m	P;Gn	M	c	w	c	vc	ps	25	25	0	0	0	w	4		n	3	n		Sm			Pm	n	n
MR-43	188	189	85	a	m	R;C	M	c	w	c	vc	ps	38	30	0	0	0	n			n	3	n		Sm			Pm	n	n
MR-43	189	190	92	a	m	R;P;Gn	B	c	w	m	c	ps	8	13	0	0	0	n			n	2	n		Sm			Pm	n	n
MR-43	190	191	98	a	m	P;R	B	c	w	c	vc	ps	9	22	0	0	0	n			n	3	n		Sm			Pm	n	n
MR-43	191	192	98	a	p	P	B	c	w	c	vc	g	8	14	0	0	0	n			n	2	n		Sm				n	n
MR-43	192	193	98	a	p	P	B	c	w	c	vc	ps	19	25	0	0	0	n			n	5	n		Sm			Pm	n	n
MR-43	193	194	98	a	p	P;C	M	c	w	c	vc	pm	20	20	0	0	0	n			n	4	n		Sm			Pm	n	n
MR-43	194	195	98	a	p	P	U	c	w	c	vc	pm	46	22	0	0	0	n			n	2	n	Gm	Sm				n	n
MR-43	195	196	98	a	p	P	U	c	w	y	vc	ps	9	25	0	0	0	n			n	3	n		Sm			Pm	n	n
MR-43	196	197	98	a	p	C	U	c	w	y	y	vc	5	2	0	0	0	n		Bn		4	n		Sm		Mm		n	n
MR-43	197	198	98	a	p	C;P	B	c	w	y	y	g	65	10	0	0	0	w	0.5		n	3	n				Mm	Pm	n	n
MR-43	198	199	98	a	p	P;Gn	M	c	w	c	vc	ps	16	15	0	0	0	n			n	7	n		Sm			Pm	n	n
MR-43	199	200	85	a	p	C	U	c	w	c	vc	ps	8	22	0	0	0	n			n	2	n					Pm	n	n
MR-43	200	201	97	a	p	C	U	c	w	c	vc	ps	23	18	0	0	0	n			n	3	n					Pm	n	n
MR-43	201	202	97	a	p	C	U	c	w	c	vc	ps	9	8	0	0	0	n			n	2	n					Pm	n	n
MR-43	202	202.22	98	a	p	C	U	c	w	c	vc	ps	13	20	0	0	0	n			n	1	n					Pm	n	n
MR-45	30	31	40	t	p	C	Lr	c	w	f	m	m	3	1	0	0	0			Bk	d				Sr					
MR-45	31	32	98	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0					1			Sm;Sr				t	i
MR-45	32	33	100	t	p	P	Lr,Ld	c	w	f	m	c	5	1	0	0	0			Bk	d				Sp				t	i
MR-45	33	34	99	t	p	P	Lr	c	w	f	m	c	5	2	0	0	0			Bn	l	3			Sr				t	i
MR-45	34	35	55	t	p	P	Lr,Sr	c	w	f	m	c	6	2	0	0	0			Bk	d		s	G1	Sl				t	i
MR-45	35	36	99	t	p	P	Lr,Sr	c	w	f	m	c	11	2	0	0	0					1		G1	Sr				t	i
MR-45	36	37	100	t	p	P	Lr,Sr	c	w	f	m	c	2	0	0	0	0			Bk	d	2			Sr				t	i
MR-45	37	38	98	t	p	P	Lr,Sr	c	w	f	m	c	7	1	0	0	0			Bk	d				Sp				t	i
MR-45	38	39	100	t	p	P	Lr,Sr	c	w	f	m	m	7	1	0	0	0			Bk	d	1			Sr					
MR-45	39	40	90	tm	m	P,M	Lr,Sr	c	w	s	m	vc	9	4	0	15	0			Bk	d	5		G1	Sr		Mh	Pm	t;t	i;f
MR-45	40	41	45	t	m	C	Lr	c	w	f	m	c	4	2	0	0	0					2	s		Sr				t;t	i;f
MR-45	41	42	100	t	p	P	Lr	c	w	f	m	vc	5	3	0	0	0					3			Sr			Pm	t;t	i;f
MR-45	42	43	100	t	p	C	Lr	c	w	f	c	vc	4	3	0	0	0					1			Sr			Pr	t	i
MR-45	43	44	100	t	p	C	Lr	c	w	m	c	c	20	3	0	0	0					1	s	G1	Sr;Sm				t	i
MR-45	44	45	98	t	d	M,P	B	c	w	vf	vf	vf	1	0	0	100	0					1				Fh				
MR-45	45	46	99	mt	m	C	Lr	c	w	f	c	vc	5	4	0	0	0					1			Sl				t	f
MR-45	46	47	98	tm	m	P	Lr	c	w	f	c	c	8	2	0	0	0								Sl				t	i
MR-45	47	48	100	tm	m	P	Lr	c	w	f	m	c	15	3	0	0	0			Bn	l	8		G1	St;Sr				t;t	f;i
MR-45	48	49	100	tm	p	P	Lr	c	w	f	m	c	8	3	0	0	0					4			St;Sr			Ph	t;t	i;f
MR-45	49	50	94	t	p	P	Lr	c	w	f	m	c	3	2	0	0	0					3			Sx				t	f
MR-45	50	51	100	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0					3			Sm	Fr			t	f

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-43	161	162	1	ft	5	y	2	fi	y	12	possible fault zone with large clay bed
MR-43	162	163	1	ft	5	y	2				
MR-43	163	164	1								
MR-43	164	165	1	ft	0	qp	0				fault zone-silicified
MR-43	165	166	1								ss is not competent
MR-43	166	167	2								core friable, fractured
MR-43	167	168	1								core friable, fractured
MR-43	168	169	2	ft;ft	10;30	qp;y	10;0				
MR-43	169	170	0								missing core
MR-43	170	171	0	ft	60	y	0				
MR-43	171	172	1	ft	45	y	10				
MR-43	172	172.15	0								base is FP/MF contact. Gradational contact, rip up at contact (looks like breccia)
MR-43	172.15	173	0					fi	y	10	clay zone (chloritic?) replacing ss., has many clay beds
MR-43	173	174	0					fi	y	10	clay zone (chloritic?) replacing ss.
MR-43	174	175	0								
MR-43	175	176	0	ft	20	y	0				
MR-43	176	177	0		0		0	fo	y	30	large clay replaced fault
MR-43	177	178	0		0		0	ms;fo;fo	y;y;y	10;8;8	3 clay altered faults or bedding
MR-43	178	179	0	ft	20	y	10				
MR-43	179	180	0	ft	20	y	5				
MR-43	180	181	0					fo	y	12	
MR-43	181	182	0	fr	70	y	0	fo;fo;fo	y;y;y	16;5;14	3 clay altered zones
MR-43	182	183	0								
MR-43	183	184	0	ft	10	y	20	fi	y	3	
MR-43	184	185	0	ft;ft	50;50	o;y	0;0				
MR-43	185	186	0	ft	20	y	0	fi	y	4	
MR-43	186	187	0								
MR-43	187	188	0								large brown clast/intraclast?
MR-43	188	189	0	ft	30	y	0				
MR-43	189	190	0	ft	40;0	y;o	0;0				fault has chlorite in it
MR-43	190	191	0	ft	30	y	0				
MR-43	191	192	0								
MR-43	192	193	0	ft	20	y	10				
MR-43	193	194	0	ft	15	y	0	fo	y	2	
MR-43	194	195	0	ft	50	y	0				
MR-43	195	196	0	ft	30	y	0	fi;fo	y;y	8;6	
MR-43	196	197	0					fo	y	80	most of the metre is completely altered to clay, there is a small section of sandstone in the middle-possibly 2 faults
MR-43	197	198	0					fo	y	70	top 70% of metre is altered to clay (part of upper metre), clay is partly broken down
MR-43	198	199	0	fr;ft	40;20	qd;y	0;0				fractures have drusy quartz
MR-43	199	200	0	ft	20	y	0				
MR-43	200	201	0	ft	40	y	0				
MR-43	201	202	0	ft	40	y	0				
MR-43	202	202.22	0								regolith/FP contact, sharp-flat, ss. deposited on top of reg.
MR-45	30	31									LzL starts at 30.6m, from 24.7-30.6m is overburden of boulders and pebbles of ath. ss and devonian?
MR-45	31	32	3								
MR-45	32	33	7								
MR-45	33	34	28	fr	20	py					
MR-45	34	35	5								
MR-45	35	36	9								
MR-45	36	37	3	fd	5						
MR-45	37	38	1								
MR-45	38	39									
MR-45	39	40	0.5								clay drapes, abundant pebbles and G1s
MR-45	40	41	0.5								Missing half of core
MR-45	41	42	0.5								has pebbly ss
MR-45	42	43	17								
MR-45	43	44	1								
MR-45	44	45									
MR-45	45	46	0.5								
MR-45	46	47	1								
MR-45	47	48	1								Last G1 layer at 47.55m
MR-45	48	49	1	ft	20	py					Last pebbly layer at 48.5m
MR-45	49	50	0.5								possible LzL/MF contact at 49.9m with the last granule and coarse material
MR-45	50	51	0.5	fr	15	qd	1				

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSSG Grain Size	PSSS Grain Size	PSSF Grain Size	PSSM Grain Size	PSSP Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-45	51	52	98	tm	p	C,Y	Lr	c	w	f	f	m	1	0	0	0	0					4			Sr				t	f
MR-45	52	53	95	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0	g	0.6			3				Fr			t	f
MR-45	53	54	100	tm	m	P	Lr	c	w	f	f	m	1	0	0	0	0	p	0.5			3				Fx;Fm			t	f
MR-45	54	55	98	t	m	P,Y	Lr,Sr	c	w	f	f	m	1	0	0	0	0	p	0.3			6				Fr;Fm			t	f
MR-45	55	56	97	tm	m	P	Lr	e	w	f	m	m	1	0	0	0	0	d	0.3			7				Fr;Fm			t	f
MR-45	56	57	95	t	m	C	Lr	c	m	f	f	m	1	0	0	0	0	d	0.1			20				Fr			t	f
MR-45	57	58	98	tm	p	C	Lr	c	m	f	m	m	1	0	0	0	0	p	0.6			10			Sr				t	f
MR-45	58	59	92	t	p	C	Lr	c	m	f	f	m	1	0	0	0	0					20				Fr			t	f
MR-45	59	60	98	tm	p	P	Lr	c	w	f	f	m	1	0	0	0	0					10				Fr;Fl			t	f
MR-45	60	61	97	tm	p	C	Lr	c	w	f	f	m	1	0	0	0	0	p	0.3			8				Fx			t	f
MR-45	61	62	98	tm	p	C	Lr	c	w	f	f	m	1	0	0	0	0					10				Fr			t	f
MR-45	62	63	100	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2			7			Sr	Fm			t	f
MR-45	63	64	100	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0	p	0.4			4				Fr			t	f
MR-45	64	65	99	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.6			6			Sr				t	f
MR-45	65	66	100	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.3			7			Sr				t	f
MR-45	66	67	100	tm	p	C	U	c	w	f	m	m	1	0	0	0	0	p	0.2			4			Sr				t	f
MR-45	67	68	85	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					5			Sr				t	f
MR-45	68	69	100	t	p	C	Lr	c	w	f	m	c	1	0	0	0	0					3			Sr				t	f
MR-45	69	70	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					4			Sr					
MR-45	70	71	95	tm	p	C	Lr	c	w	f	m	m	2	0	0	0	0	w	1.5			3			Sr				t	f
MR-45	71	72	100	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	w	0.5			3			Sr					
MR-45	72	73	100	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	w	1.9			4			Sr					
MR-45	73	74	97	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0					5				Fr;Fm				
MR-45	74	75	100	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0					1			Sr					
MR-45	75	76	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					2			Sr;Sl					
MR-45	76	77	97	t	p	C	U	c	w	f	m	m	1	0	0	0	0			Bk	d	5			Sr					
MR-45	77	78	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.5			3			Sr					
MR-45	78	79	98	tm	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0			Bk	d	2			Sr					
MR-45	79	80	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2	Bn	l	4			Sr					
MR-45	80	81	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.5			2	r		Sr					
MR-45	81	82	100	t	p	C	Lr	c	w	f	m	c	1	0	0	0	0			Bn	l	5			Sr					
MR-45	82	83	92	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.1	Bn	d	3			Sr					
MR-45	83	84	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	g	0.2			2			Sr;Sm					
MR-45	84	85	100	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0					1			Sr					
MR-45	85	86	95	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.5			1			Sr	Fm				
MR-45	86	87	100	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					1			Sr					
MR-45	87	88	100	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	d	0.5			3			Sr					
MR-45	88	89	98	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2			9			Sr				t	f
MR-45	89	90	100	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					1			Sr;Sm					
MR-45	90	91	100	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					1			Sr					
MR-45	91	92	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0								Sr;Sm					
MR-45	92	93	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.4	Bn	d	4			Sr;Sm					
MR-45	93	94	98	tm	p	P	Lr	c	w	f	m	m	1	0	0	0	0	d	0.2			5			Sr;Sm					
MR-45	94	95	84	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0					1			Sr					
MR-45	95	96	100	tm	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	d	0.1			2			Sr					
MR-45	96	97	95	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					5			Sr					
MR-45	97	98	97	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					3			Sr;Sm					
MR-45	98	99	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0			Bk	d	2			Sr					
MR-45	99	100	100	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.1			2			Sr					
MR-45	100	101	80	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					2			Sr					
MR-45	101	102	100	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.4			2			Sr					
MR-45	102	103	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.2			2			Sr					
MR-45	103	104	97	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.2			2			Sr;Sm					
MR-45	104	105	100	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2			2			Sr;Sm					
MR-45	105	106	100	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	p	0.1			2			Sr;Sm					
MR-45	106	107	92	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	g	0.2			4			Sr;Sm					
MR-45	107	108	98	tm	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	p	0.4			2			Sr					
MR-45	108	109	98	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	p	0.1			1			Sr					
MR-45	109	110	80	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					2			Sr	Fm				
MR-45	110	111	100	tm	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	d	0.2			2	s		Sr					
MR-45	111	112	100	tm	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	p	0.3			1			Sr	Fm				
MR-45	112	113	95	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					2			Sr					
MR-45	113	114	100	tm	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					1			Sr					
MR-45	114	115	100	tm	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					4			Sr					

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-45	51	52	0.5	ft	25	su	20				
MR-45	52	53	0.5								
MR-45	53	54	0.5								
MR-45	54	55	0.5	ft;fr	20;20	qd;qd	1;1				
MR-45	55	56	0.5	bx;fr	40;35	o;qd	20;1				Fault is brecciated, has brecciated wa;; rpck with bitumens in matrix
MR-45	56	57	3	ft;bx	20	sc;o	10;70				Fault zone with brecciated zones filled with bitumens and wall rock, highly fractured and broke core, many fractures silicified
MR-45	57	58	1	ft	40	sc	20				Brecciated fault infilled with bitumens and wall rock clasts, silicified fractures
MR-45	58	59	2	ft;ft;bx	10;20	su;qo;qo	15;2;20				Highly faulted/fractured, silicified and filled with bitumens
MR-45	59	60	1	fr	20	qd	1				Fractured and silicified and hydrocarbon filled
MR-45	60	61	0.5								
MR-45	61	62	15	br;ft;bx	15;30	sc;sc;o	30;20;30				Faulted zones, have brecciated faulted zone filled with f. gr. sand/bitumens/wall rock clast
MR-45	62	63	0.5	ft	15	y	1				
MR-45	63	64	0.5								
MR-45	64	65	0.5								
MR-45	65	66	0.5	fr	20	qo	1				
MR-45	66	67	0.5	fd	20	qo	1				
MR-45	67	68	1	fd	10	su	7				
MR-45	68	69	0.5								
MR-45	69	70		ft	10	y	1				
MR-45	70	71	0.5								
MR-45	71	72									
MR-45	72	73									
MR-45	73	74		fr	70	py					
MR-45	74	75									
MR-45	75	76									
MR-45	76	77									Broken core
MR-45	77	78									
MR-45	78	79		fr	85	py					
MR-45	79	80		fr	85	py					
MR-45	80	81		fr	20	py					
MR-45	81	82		fr	20	py					
MR-45	82	83									
MR-45	83	84									
MR-45	84	85		fd	15						
MR-45	85	86									
MR-45	86	87									
MR-45	87	88									
MR-45	88	89	0.5								
MR-45	89	90									
MR-45	90	91									
MR-45	91	92									
MR-45	92	93									
MR-45	93	94									
MR-45	94	95									
MR-45	95	96									
MR-45	96	97		fr	80	py					Broken core
MR-45	97	98									
MR-45	98	99									
MR-45	99	100									
MR-45	100	101									
MR-45	101	102									
MR-45	102	103									
MR-45	103	104									
MR-45	104	105									
MR-45	105	106									
MR-45	106	107									
MR-45	107	108									
MR-45	108	109									
MR-45	109	110									
MR-45	110	111		fd	10						
MR-45	111	112									
MR-45	112	113									
MR-45	113	114									
MR-45	114	115									

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-45	115	116	92	tm	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	p	0.3			1			Sr					
MR-45	116	117	100	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	d	0.3						Sr					
MR-45	117	118	99	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					2			Sr				t	f
MR-45	118	119	92	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					2			Sr				t	f
MR-45	119	120	100	tm	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					3			Sr;Sm					
MR-45	120	121	100	tm	p	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0					3			Sr					
MR-45	121	122	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.1						Sr;Sm					
MR-45	122	123	100	t	m	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0					2			Sr;Sm					
MR-45	123	124	100	t	m	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2			2			Sr					
MR-45	124	125	93	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0					14			Sm;Sr				t	f
MR-45	125	126	100	tm	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					5			Sr					
MR-45	126	127	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0					13			Sr;Sm				t	f
MR-45	127	128	99	t	p	C	Lr,Sr	c	w	f	f	m	1	0	0	0	0					20			Sr	Fm			t	f
MR-45	128	129	90	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0					40			Sr				t	f
MR-45	129	130	99	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0					15			Sr	Fr			t	f
MR-45	130	131	97	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					8			Sr				t	f
MR-45	131	132	100	tm	p	C	Lr	c	w	f	m	m	2	0	0	0	0					6			Sr				t	f
MR-45	132	133	100	t	m	C	Lr	c	w	f	m	c	4	2	0	0	0					9			Sr				t	f
MR-45	133	134	98	tm	p	C	Lr	c	w	f	f	c	2	0	0	0	0	p	0.2			3			Sr	Fr			t	f
MR-45	135	136	100	tm	p	C	Lr	c	w	f	m	m	2	0	0	0	0					9			Sl;Sm;Sr				t	f
MR-45	136	137	92	t	m	C	Lr,Sr	c	w	f	m	m	2	0	0	0	0					3			Sr;Sl					
MR-45	137	138	100	tm	m	P	Lr	c	w	f	m	c	2	0	0	0	0	p	0.1			3			Sr;Sl				t	f
MR-45	138	139	100	t	m	P	Lr	c	w	f	m	vc	2	0	0	6	0					3			Sr		Mh		t	f
MR-45	139	140	97	tm	m	C	Lr	c	w	f	m	vc	6	2	1	0	0	p	0.3	Bn	d	4			Sr				t	f
MR-45	140	141	98	tm	m	C	Lr	c	w	f	m	c	3	1	0	0	0	p	0.3			6			Sr				t	f
MR-45	141	142	100	tm	p	C	Lr	c	w	f	f	c	3	1	0	0	0					3			Sr	Fm			t	f
MR-45	142	143	90	tm	p	C	Lr	c	w	f	m	vc	6	2	0	0	0			Bn	d	2			Sl;Sr					
MR-45	143	144	98	tm	m	C	Lr	c	w	f	m	vc	6	3	0	0	0			Bn	d	5			Sr				t	f
MR-45	144	145	100	tm	p	C	Lr	c	w	f	m	vc	3	1	0	0	0					4			Sr;Sm				t	f
MR-45	145	146	100	mt	p	C	Lr	c	w	f	m	vc	3	1	0	4	0	d	0.2	Bn	d	4			Sr		Mh		t	f
MR-45	146	147	100	tm	p	C	Lr	c	w	f	m	c	3	1	1	0	0	d	0.2	Bn	d	4			Sr;Sl					
MR-45	147	148	100	n	p	C	U	c	w	f	m	c	5	1	0	0	0					3			Sr				t	f
MR-45	148	149	98	t	p	C	U	c	w	f	m	c	3	1	0	0	0					2			Sr				t	f
MR-45	149	150	100	t	p	C	Lr	c	w	f	m	vc	4	1	0	0	0					4			Sr;Sm				t	f
MR-45	150	151	100	tm	p	C	Lr	c	w	f	m	g	4	6	0	0	0			Bn	d	1			Sr				t;t	f;i
MR-45	151	152	92	mt	p	C	Lr	c	w	f	c	vc	8	1	0	0	0					6			Sr;Sm				t	f
MR-45	152	153	100	a	m	P,Pu	B	c	w	m	c	vc	9	2	0	0	0						c		Sm					
MR-45	153	154	100	a	p	C	U	c	w	m	c	vc	14	5	0	0	0					4	r		Sm;Sr					
MR-45	154	155	92	a	m	C,Pu	B	c	w	m	c	g	15	6	0	0	0	w	1.8			1	r		Sm					
MR-45	155	156	100	a	m	Pu,P	M	c	w	m	c	g	8	5	0	0	0					1			Sm					
MR-45	156	157	100	a	m	Pu,P	M	c	w	m	c	g	5	4	0	0	0					1			Sm					
MR-45	157	158	92	a	p	C	U	c	w	m	c	g	8	4	0	0	0					4			Sm;Sx				t	f
MR-45	158	159	100	a	m	Pu,P	M	c	w	m	c	vc	20	2	0	0	0					1			Sm					
MR-45	159	160	100	a	p	C,O	B	c	w	m	c	vc	8	2	0	0	0					12			Sm				t	f
MR-45	160	161	90	a	m	O,C,Pu,G	M	c	w	m	c	vc	5	2	0	0	0					4			Sm					
MR-45	161	162	100	a	m	O,P,Pu	M	c	w	m	m	vc	9	2	0	0	0					3			Sm					
MR-45	162	163	100	a	m	C,O,Pu	B	c	w	m	c	vc	32	4	0	0	0					4			Sm				t	f
MR-45	163	164	100	a	m	C,Pu	M	c	w	m	c	vc	12	3	0	0	0					3			Sm				t	f
MR-45	164	165	100	a	m	C,Pu,O,G	M	c	w	m	c	c	4	1	0	0	0					5			Sm				t	f
MR-45	165	166	100	a	m	Pu,P	M	c	w	m	c	g	11	4	0	0	0					1			Sm;Sx					
MR-45	166	167	95	a	d	M,P,Gn	M,Sr	c	w	m	c	vc	7	2	0	0	0			M	d	1			Sm					
MR-45	167	168	100	a	m	M,P	M	c	w	m	c	vc	5	2	0	0	0			M	d	1			Sm					
MR-45	168	169	100	a	m	M,P,Gn	M	c	w	m	c	g	8	6	1	0	0								Sm					
MR-45	169	170	90	a	m	Pu,P,Gn	M	c	w	m	c	vc	5	2	0	0	0								Sm					
MR-45	170	171	100	a	m	Pu,P,Gn	B	c	w	m	c	g	19	6	0	0	0								Sm					
MR-45	171	172	100	a	m	P,Pu	M	c	w	m	c	vc	6	2	0	0	0					1			Sm				t	f
MR-45	172	173	99	a	p	C,Pu	M	c	w	m	c	g	38	12	0	0	0					3			Sm;Sx				t	f
MR-45	173	174	100	a	p	P,Pu	M	c	w	m	c	vc	32	4	0	0	0					5			Sm;Sx				t	f
MR-45	174	175	100	a	p	P,Pu,Gn	B	c	w	f	c	vc	27	10	0	0	0								Sm	Fl				
MR-45	175	176	95	a	m	P,Pu,Gn	B	c	w	m	c	ps	22	22	0	0	0					1			Sm			Pm		
MR-45	176	177	100	a	m	Pu,P,Gn	B	c	w	m	c	ps	18	22	0	0	9							Gh	Sm			Ph		
MR-45	177	178	100	a	m	Pu,P	B	c	w	m	c	g	30	7	0	0	0								Sm					
MR-45	178	179	97	a	m	P,Pu	M,Lr	c	w	m	c	g	15	12	0	0	2							Gh	Sx			Ph		
MR-45	179	180	100	a	m	M,P	M	c	w	m	c	ps	18	13	0	0	11							Gh	Sm	Fh		Ph		

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-45	115	116									
MR-45	116	117									
MR-45	117	118	1	fd	5	o					
MR-45	118	119	1								
MR-45	119	120									
MR-45	120	121									
MR-45	121	122									
MR-45	122	123									
MR-45	123	124									
MR-45	124	125	0.5	ft	30						fractured/faulted zone been silicified
MR-45	125	126		fr	40	py					
MR-45	126	127	1	fd,br	10;50	qt;su	1;20				Highly fractured and silicified
MR-45	127	128	4								Highly fractured and silicified and bitumen stained
MR-45	128	129	45								Highly fractured and bitumen stained
MR-45	129	130	0.5	fd;fr	20;10	y;qd	1;1				
MR-45	130	131	0.5	fd	10	o					
MR-45	131	132	1	fd	30	y	2				start to see coarser material
MR-45	132	133	1								
MR-45	133	134	0.5								
MR-45	135	136	0.5								
MR-45	136	137									
MR-45	137	138	1								
MR-45	138	139	0.5								
MR-45	139	140	0.5								
MR-45	140	141	2								
MR-45	141	142	0.5	fd	5	o					
MR-45	142	143									
MR-45	143	144	0.5	fr	10	qd	1				
MR-45	144	145	0.5								
MR-45	145	146	0.5								
MR-45	146	147		fd	10						
MR-45	147	148	0.5	fr	20	qd	1				
MR-45	148	149	0.5								
MR-45	149	150	1								
MR-45	150	151	1								
MR-45	151	152	1								FP/MF contact at 151.73m, large FP clast in MF, MF mainly coarser gr. - reworked FP?
MR-45	152	153									med. gr. ss bed with soft sed. deformation (circle structure) into coarser gr. bed above it
MR-45	153	154									Med gr. beds between c. gr. beds, scoured contacts
MR-45	154	155									med. gr. bed on a scoured surface, bed thins to one side
MR-45	155	156									
MR-45	156	157		fr	20	qp	1				
MR-45	157	158	0.5								
MR-45	158	159									
MR-45	159	160	0.5	ft	40	o	150				Fault controled brecciated zone with wall rock clast, orange coloured fill and chlorite lined fractures, fill looks like FP-f. to m. gr. with pebbles
MR-45	160	161		ft,ft	20;20	o;o	150;300				Brecciated fault at top part of previous metre, lower brecciated fault is the same as one above but has less straight fault contacts
MR-45	161	162		ft,ft,ft	20;10;20	o;o;o	450;370;100				brecciated faults as in previous metres-wall rock clasts as well as pebbles, orange and purp;e co;purs in faults
MR-45	162	163	0.5	ft,ft,ft	20;10;20	o;o;o	400;200;5				Brecciated faults, large one at top part of previous metre, edge of fault at base, looks like viens of fault material above lower fault
MR-45	163	164	0.5	ft	20	o	3				Orange coloured fault-looks like viens and pool along a bedding surface? and continues up
MR-45	164	165	0.5	ft,ft,ft,fr	20;20;20;	o;o;o;o	15;17;5;3				Thin brecciated orange faults, orange coloured fault material along fracture/fault and ends at a bedding surface which is filled with material
MR-45	165	166									
MR-45	166	167									
MR-45	167	168									
MR-45	168	169									
MR-45	169	170									
MR-45	170	171									
MR-45	171	172	0.5								
MR-45	172	173	0.5								Red lines look like min. on bedding planes
MR-45	173	174	0.5								
MR-45	174	175									See a 25cm fine gr. bed
MR-45	175	176									
MR-45	176	177									
MR-45	177	178									
MR-45	178	179									
MR-45	179	180									

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Darkness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-45	180	181	100	a	m	M,P	M,Lr	c	w	m	c	ps	30	11	0	0	6					2		Gh	Sm			Pm		
MR-45	181	182	98	a	m	M,P	M	c	w	f	c	vc	8	4	1	0	0								Sm	Fh	Mh			
MR-45	182	183	100	a	m	M,P,Gn	M	c	w	m	c	ps	17	20	0	0	11							Gh	Sm			Ph		
MR-45	183	184	100	a	m	M,P	B	c	w	m	c	g	7	12	0	0	4							Gh	Sm	Fh		Px		
MR-45	184	185	90	a	m	Pu,P	M	c	w	m	c	pm	30	14	0	0	6							Gh	Sm			Pm		
MR-45	185	186	100	a	d	M,P,Gn	M	c	w	m	c	g	12	10	0	0	8					1		Gh	Sm					
MR-45	186	187	94	a	m	M,P	M	c	w	m	c	g	33	12	0	0	0								Sm			Ph		
MR-45	187	188	100	a	m	M,P,Gn	M	c	w	f	c	vc	31	4	0	0	2								Sm	Fm				
MR-45	188	189	100	a	d	M,P	B	c	w	m	c	vc	9	3	0	0	0								Sm					
MR-45	189	190	100	a	m	M,P	Lr	c	w	m	c	g	21	9	0	0	0								Sm					
MR-45	190	191	97	a	m	P,Pu	Lr	c	w	m	c	g	14	8	0	0	0								Sm					
MR-45	191	192	100	a	p	C,Pu,Gn	M	c	w	m	c	ps	30	24	0	0	0								Sm			Pm		
MR-45	192	193	100	a	m	P,Pu,Gn	M	c	w	m	c	vc	14	4	0	0	0					2			Sm					
MR-45	193	194	100	a	m	P,Pu,Gn	B	c	w	f	c	vc	31	6	0	0	0					3			Sm	Fm			t	f
MR-45	194	195	100	a	m	P,Pu,Gn	B	c	w	m	c	ps	60	25	0	0	8					2		Gh	Sm			Pm	t	f
MR-45	195	196	100	a	m	P,Pu,Gn	Lr	c	w	m	c	g	18	12	0	0	0								Sm			Pm;Ph		
MR-45	196	197	96	a	m	P,Pu	M	c	w	m	c	pm	33	30	0	0	3					2		Gh	Sm			Pm		
MR-45	197	198	100	a	p	C,Pu,Gn	M	c	w	m	c	g	41	13	0	0	0					1			Sm					
MR-45	198	199	100	a	m	P,Pu	M	c	w	m	c	g	70	10	0	0	0								Sm					
MR-46	30	31	5	t	p	C	U	c	w	f	m	m	1	0	0	0	0	n	0	Bk	d	1			Sm					
MR-46	31	32	75	t	p	C	Lr	c	w	f	f	m	5	1	0	0	0			Bk	l	6			Sr;Sx				p	i
MR-46	32	33	99	t	p	P; Y	Lr	c	w	vf	m	m	3	0	0	0	0			Bk	d	4	s2		Sr					
MR-46	33	34	98	t	p	C	Lr;Sr	c	w	f	m	m	2	0	0	0	0			Bk	l	2			Sr				p	i
MR-46	34	35	100	t	p	C	Lr	c	w	f	m	m	4	1	0	0	0			Bk	d	1	s		Sr	Fm			p	i
MR-46	35	36	97	t	p	P	Lr	c	w	f	m	m	3	1	0	0	0			Bk	d	1			Sr				p	i
MR-46	36	37	98	t	p	P	Ld	c	w	vf	f	m	3	1	0	0	0			Bn	l	1				Fm;Fl			p	i
MR-46	37	38	95	t	m	P	Lr;Ld;Sr	c	w	f	m	m	1	0	1	0	0			Bk	d	8			Sm;Sr		Mh			
MR-46	38	39	99	t	p	C	Lr	c	w	f	m	m	5	1	0	0	0			Bn	l	1	s		Sr				p	i
MR-46	39	40	99	t	p	P	Lr;Sr	c	w	m	m	m	10	3	0	0	0			Bn	l	1		G1;Gh	Sr				p	i
MR-46	40	41	98	t	p	P	Lr;Sr	c	w	f	m	m	6	1	0	0	0			Bk	d	2	s		Sr					
MR-46	41	42	99	t	p	C	Ld;Sd	c	w	f	m	c	5	1	0	0	0					3			Sr	Fm			p	i
MR-46	42	43	98	t	p	P	Ld	c	w	f	m	vc	6	1	0	0	0			Bn	l	1			Sr;Sl	Fm				
MR-46	43	44	97	t	m	P	Lr	c	w	f	m	vc	7	2	0	0	0			Bk	d		s		Sr;Sl					
MR-46	44	45	100	t	p	P	Lr	c	w	f	m	vc	15	3	0	0	0							G1	Sl	Fr			p	i
MR-46	45	46	99	t	p	P	Lr	c	w	f	m	c	12	1	0	0	0					2	s		Sr				p	i
MR-46	46	47	95	t	p	P	Lr	c	w	f	c	vc	15	4	0	0	0					1	s		Sl			Ph	p	i
MR-46	47	48	100	n	p	P	Lr	c	w	f	c	vc	4	2	0	0	0						c		Sr				p	i
MR-46	48	49	98	t	m	Pu	B	c	w	s	vf	m	1	0	0	70	0					2			Sr	Fh	Mh			
MR-46	49	50	97	t	m	P	Lr	c	w	vf	m	vc	17	2	0	21	0								Sr	Fh				
MR-46	50	51	100	t	p	P	Lr	c	w	f	m	vc	7	3	0	0	0								Sr			Ph		
MR-46	51	52	85	t	m	P	Lr	c	w	f	f	vc	20	3	0	0	0					1				Fm		Pm		
MR-46	52	53	96	t	p	P	Ld	c	w	f	m	c	5	1	0	0	0			Bn	l	1			Sr					
MR-46	53	54	99	t	p	C	Ld	c	w	f	f	m	1	0	0	0	0	p	0.3						Sr					
MR-46	54	55	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.4	Bn	l	2			Sr					
MR-46	55	56	94	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.6						Sr	Fm				
MR-46	56	57	100	t	p	P	Lr	c	w	f	f	m	1	0	0	0	0	g	0.2							Fl				
MR-46	57	58	99	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.4	Bn	l	2			Sr;Sl				p	f
MR-46	58	59	99	t	p	P	Ld	c	w	f	m	m	1	0	0	0	0	p	0.3			10			Sr	Fl				
MR-46	59	60	99	t	p	P	Ld	c	w	f	m	m	1	0	0	0	0	w	1.2	Bn	l	1			Sr					
MR-46	60	61	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					2			Sr					
MR-46	61	62	97	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.8			1			Sr	Fm				
MR-46	62	63	99	t	p	P	Lr;Sr	c	w	f	m	m	1	0	0	0	0	g	0.4						Sr	Fm				
MR-46	63	64	87	t	m	P	Lr	c	w	f	m	m	1	0	0	0	0	g	0.2						Sr	Fm				
MR-46	64	65	95	t	m	P	Lr	c	w	f	m	m	1	0	0	0	0			Bn	l	1			Sr	Fm				
MR-46	65	66	99	t	m	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.3	Bn	d	1			Sr					
MR-46	66	67	99	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0	g	0.8						Sr					
MR-46	67	68	93	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2	Bn	d				Sr;Sl	Fm				
MR-46	68	69	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	w	1						Sr;Sm					
MR-46	69	70	93	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.3						Sr					
MR-46	70	71	98	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.3			2			Sr;Sl					
MR-46	71	72	100	t	p	C	U	c	w	f	m	m	1	0	0	0	0								Sr;Sl					
MR-46	72	73	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0			Bn	d	3			Sr	Fm				
MR-46	73	74	97	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	g	0.1						Sr					
MR-46	74	75	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					1			Sr		Mh			

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct.FF Cement	Tec. Struct.FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-45	180	181									
MR-45	181	182									
MR-45	182	183									
MR-45	183	184									
MR-45	184	185									
MR-45	185	186									
MR-45	186	187									
MR-45	187	188									
MR-45	188	189									
MR-45	189	190									
MR-45	190	191									
MR-45	191	192									
MR-45	192	193									
MR-45	193	194	0.5								
MR-45	194	195	0.5								
MR-45	195	196									
MR-45	196	197									
MR-45	197	198									
MR-45	198	199									FP/basement contact at 180.42m, contact sharp and angled, FP has c. gr. ss at base with a few large pebbles at base
MR-46	30	31									Most core is missing, lazenby lake starts at 30 m.
MR-46	31	32	8								There is large ss pebbles, possible overburden or ground core. Bedding is almost vertical in one section
MR-46	32	33									yellow staining around disseminated pyrite
MR-46	33	34	7								
MR-46	34	35	8								
MR-46	35	36	4								
MR-46	36	37	2								Ground core
MR-46	37	38									
MR-46	38	39	1								
MR-46	39	40	1								1st appearance of G1 layers. Thin gravel bed.
MR-46	40	41									
MR-46	41	42	3								
MR-46	42	43									
MR-46	43	44									
MR-46	44	45	1								A few G1 layers-granule to sm pebble sized. One large G1 layer ofmedium pebble size
MR-46	45	46	2								
MR-46	46	47	15								
MR-46	47	48	1								
MR-46	48	49									Silt to v f gr. ss bed
MR-46	49	50									Clay drapes
MR-46	50	51									
MR-46	51	52									51.24 m is the last pebbly ss -possibly LzL / MF contact. Missing core-sample taken
MR-46	52	53									
MR-46	53	54									
MR-46	54	55									
MR-46	55	56									
MR-46	56	57									
MR-46	57	58	0.1								
MR-46	58	59									
MR-46	59	60									
MR-46	60	61									
MR-46	61	62									
MR-46	62	63									
MR-46	63	64									
MR-46	64	65									
MR-46	65	66									
MR-46	66	67									
MR-46	67	68									
MR-46	68	69									
MR-46	69	70									
MR-46	70	71									
MR-46	71	72									
MR-46	72	73									
MR-46	73	74									
MR-46	74	75									

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 3cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-46	75	76	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0								Sr					
MR-46	76	77	90	t	p	C	Lr;Sr	c	w	f	m	m	1	0	0	0	0	g	0.2						Sr					
MR-46	77	78	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					3			Sr;Sm					
MR-46	78	79	90	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2			3			Sr					
MR-46	79	80	95	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					3			Sr					
MR-46	80	81	90	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	g	0.2	Bn	d	7			Sr;Sl					
MR-46	81	82	100	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0								Sr					
MR-46	82	83	94	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2						Sr					
MR-46	83	84	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	w	1.5			2			Sr					
MR-46	84	85	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	w	1			2			Sr	Fm				
MR-46	85	86	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0			Bn	d				Sr					
MR-46	86	87	98	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	g	0.3	Bn	d				Sr	Fm				
MR-46	87	88	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.1	Bn	d	1			Sr	Fm				
MR-46	88	89	88	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	w	1			1			Sr					
MR-46	89	90	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0								Sr					
MR-46	90	91	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					4			Sr					
MR-46	91	92	96	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					1			Sr					
MR-46	92	93	100	t	p	C	M	c	w	f	m	m	1	0	0	0	0					3			Sr					
MR-46	93	94	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					1			Sr					
MR-46	94	95	94	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2			2			Sr					
MR-46	95	96	95	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2			1			Sr;Sm					
MR-46	96	97	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	g	0.2			2			Sr					
MR-46	97	98	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.3	Bn	d	1			Sr					
MR-46	98	99	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0								Sr;Sm					
MR-46	99	100	99	t	p	C	U	c	w	f	m	m	1	0	0	0	0	p	0.2	Bn	l	2			Sr;Sm					
MR-46	100	101	95	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					8			Sr					
MR-46	101	102	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	g	0.4			7			Sr;Sm					
MR-46	102	103	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	w	1			12			Sr				p	f
MR-46	103	104	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	w	0.8			16			Sr;Sm				p	f
MR-46	104	105	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.5			10			Sr				p	f
MR-46	105	106	98	t	p	C	Lr	c	m	f	m	m	1	0	0	0	0	d	0.3			13			Sr				p	f
MR-46	106	107	90	t	p	C	Lr	c	m	f	m	m	1	0	0	0	0					20			Sr				p	f
MR-46	107	108	96	t	p	C	Lr	c	m	f	m	m	1	0	0	0	0	w	1.5			20			Sr				p	f
MR-46	108	109	98	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					20			Sr	Fm			p	f
MR-46	109	110	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					27			Sr				p	f
MR-46	110	111	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					12			Sr				p	f
MR-46	111	112	98	t	p	C	Sd	c	w	f	m	m	1	0	0	0	0					15			Sr				p	f
MR-46	112	113	90	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.5			20			Sr;Sm				p	f
MR-46	113	114	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	g	0.2			18			Sr				p	f
MR-46	114	115	97	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0	g	0.2			11			Sr				p	f
MR-46	115	116	90	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.5			7			Sr				p	f
MR-46	116	117	98	t	p	C	Lr	f	w	f	m	m	1	0	0	0	0	g	0.5			15			Sr;Sm				p	f
MR-46	117	118	98	t	p	C	Lr	c	w	f	m	m	1	0	1	0	0					8			Sr;Sm				p	f
MR-46	118	119	89	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0					8			Sr				p	f
MR-46	119	120	100	t	p	C	Lr;Sr	c	w	f	m	m	1	0	0	0	0	p	0.3			1			Sr;Sm					
MR-46	120	121	97	t	p	C	Lr;Sr	c	w	f	m	m	1	0	0	0	0					1			Sr					
MR-46	121	122	99	t	p	P	Lr;Sr	c	w	f	m	m	1	0	0	0	0	g	0.4			5			Sr				p	f
MR-46	122	123	100	t	m	P	Lr	c	w	f	m	m	1	0	0	0	0	g	0.2			4			Sr;Sm				p	f
MR-46	123	124	100	t	m	P	Lr;Sr	c	w	f	m	m	1	0	0	0	0					1			Sr					
MR-46	124	125	83	t	m	P	Lr;Sr	c	w	f	m	m	1	0	0	1	0					3			Sr;Sm				p	f
MR-46	125	126	99	t	p	C	Lr;Sr	c	w	f	m	m	1	0	0	0	0					4			Sr				p	f
MR-46	126	127	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	g	0.1			2			Sr				p	f
MR-46	127	128	97	t	m	P	Lr	c	w	f	m	m	1	0	0	0	0					6			Sr				p	f
MR-46	128	129	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					5			Sr;Sm				p	f
MR-46	129	130	100	t	m	P	Lr	c	w	f	m	m	1	0	0	0	0								Sr;Sm					
MR-46	130	131	100	t	p	C	Lr	c	w	f	m	m	3	0	0	0	0	w	0.5			4			Sr				p	f
MR-46	131	132	100	t	m	P	Lr	c	w	f	m	c	3	1	0	0	0	g	0.2			3			Sr;Sx				p	f
MR-46	132	133	100	t	m	C	Lr	c	w	f	m	c	3	1	0	0	0					3			Sr;Sm				p	f
MR-46	133	134	93	t	p	C	Lr	c	w	vf	f	m	2	0	0	8	0					3				Fr;Fh			p	f
MR-46	134	135	100	t	p	C	Lr	c	w	f	m	c	3	0	0	0	0	p	0.2			3			Sr;Sm					
MR-46	135	136	100	t	p	C	Lr	c	w	f	m	c	3	0	0	0	0	p	0.2			6			Sr				p	f
MR-46	136	137	99	t	p	C	Lr	c	w	f	m	c	3	0	0	0	0					4			Sr;Sm					
MR-46	137	138	100	t	p	C	U	c	w	f	m	m	1	0	0	0	0					3			Sr					
MR-46	138	139	100	t	p	C	Lr	c	w	f	m	vc	3	1	0	0	0								Sr				p	f

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct.FF Cement	Tec. Struct.FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-46	75	76									
MR-46	76	77									
MR-46	77	78									
MR-46	78	79		ft	5	qd	1				
MR-46	79	80		ft	5	qd	1				
MR-46	80	81		ft;ft	5,5	qd;py	1,1				
MR-46	81	82									
MR-46	82	83									
MR-46	83	84									
MR-46	84	85									
MR-46	85	86									
MR-46	86	87									
MR-46	87	88									
MR-46	88	89									
MR-46	89	90									
MR-46	90	91		fr	30	qd	1				
MR-46	91	92									
MR-46	92	93		ft	5	qd	1				
MR-46	93	94									
MR-46	94	95									
MR-46	95	96									
MR-46	96	97		fr	10	y	1				
MR-46	97	98									
MR-46	98	99									
MR-46	90	100		fr	80	y	1				
MR-46	100	101		fr	30	py	1				
MR-46	101	102		fr	20	qd	1				
MR-46	102	103	0.1								
MR-46	103	104	0.1	fr	25	qd	1				
MR-46	104	105	0.1	fr	10	qd	1				
MR-46	105	106	0.1	fr	30	py	1				
MR-46	106	107	1	ft	15	sc	10				
MR-46	107	108	0.1	bx		qo	40				
MR-46	108	109	0.1	fr	20	qo	1				
MR-46	109	110	0.1	ft	15	y	1				
MR-46	110	111	0.1								
MR-46	111	112	0.1	fr	20	y	1				
MR-46	112	113	0.1	fr	15	qd	1				
MR-46	113	114	0.1	ft	30	y	3				
MR-46	114	115	0.1								
MR-46	115	116	0.1								
MR-46	116	117	0.1	ft	10	y	40				
MR-46	117	118	0.1	fr	20	qd	1				
MR-46	118	119	0.1								
MR-46	119	120									
MR-46	120	121									
MR-46	121	122	0.1								
MR-46	122	123	0.1								
MR-46	123	124									
MR-46	124	125	0.1								
MR-46	125	126	0.1								
MR-46	126	127	0.1								
MR-46	127	128	0.1								
MR-46	128	129	0.1								
MR-46	129	130									
MR-46	130	131	0.1								
MR-46	131	132	0.1								
MR-46	132	133	0.1								
MR-46	133	134	0.1								
MR-46	134	135									
MR-46	135	136	0.1								
MR-46	136	137									
MR-46	137	138									Highly bleached
MR-46	138	139	0.1								Hematite rich zone

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-46	139	140	89	t	m	P	Lr	c	w	f	m	vc	3	1	0	0	0					8			Sr				p	f
MR-46	140	141	83	t	m	P	Lr	c	w	f	m	c	3	0	0	0	0	p	0.2			2			Sr				p	f
MR-46	141	142	99	t	p	C	Lr	c	w	f	m	vc	3	1	0	0	0	p	0.4	Bn	d	6			Sr				p	f
MR-46	142	143	99	t	p	P	Lr	c	w	f	m	vc	2	0	1	0	0			Bn	d	4			Sr				p	f
MR-46	143	144	99	t	p	C	Lr	c	w	f	m	vc	3	1	0	0	0					5			Sr				p	f
MR-46	144	145	100	t	p	C	Lr;Sr	c	w	vf	m	vc	5	1	0	0	0			Bn	d	7		G1	Sr				p	f
MR-46	145	146	99	t	p	C	Lr	c	w	f	m	vc	3	0	0	0	0	d	0.5			2			Sr;Sm				p	f
MR-46	146	147	99	t	p	C	Lr	c	w	f	m	vc	6	1	0	0	0			Bn	d	8			Sr				p	f
MR-46	147	148	100	t	p	C	Lr;Sr	c	w	f	m	c	2	0	0	0	0					5			Sr				p	f
MR-46	148	149	93	t	p	C	Lr	c	w	f	m	vc	3	1	0	0	0					4			Sr				p	f;i
MR-46	149	150	100	t	p	C	Lr	c	w	f	m	vc	3	1	0	0	0	w	2.5			3			Sr;Sl				p	f
MR-46	150	151	100	t	p	C	Lr	c	w	f	m	vc	4	1	0	0	0			Bn	l	3			Sr;Sl				p	f;i
MR-46	151	152	99	t	p	C	Lr	c	w	f	m	g	6	5	0	0	0			Bn	l	1			Sl			Ph	p	f;i
MR-46	152	153	100	t	p	C	U	c	w	f	m	g	6	8	0	0	0			Bn	l			Gh	Sl			Pl		
MR-46	153	154	99	tm	m	C	M	c	w	f	c	g	5	3	0	0	0	p	0.3	M	l	1			Sl					
MR-46	154	155	80	m	m	M	M	c	w	f	c	vc	3	1	0	0	0	p	0.6	M	l	1			Sl					
MR-46	155	156	100	m	m	M	M	c	w	f	c	vc	4	1	0	0	0			M	l				Sh;Sl					
MR-46	156	157	100	m	m	P	Lr	c	w	f	c	vc	4	1	0	0	0					1			Sh;Sl					
MR-46	157	158	98	m	p	C	Lr	c	w	f	c	vc	5	1	0	0	0	d	0.1	Bn	l				Sl;Sr					
MR-46	158	159	100	m	p	P	Lr	c	w	f	c	vc	5	1	0	0	0			Bn	d	1			Sl;Sr				p	f;i
MR-46	159	160	100	m	p	P	Lr	c	w	f	m	vc	5	1	0	0	0			Bn	d	3			Sl;Sr				p	f;i
MR-46	160	161	96	m	p	P	Lr	c	w	f	m	c	3	0	0	0	0			Bn	d	2			Sl				p	i
MR-46	161	162	100	m	p	C	U	c	w	f	m	g	4	3	0	0	0							Gl	Sl					
MR-46	162	163	75	m	p	C	U	c	w	f	c	vc	5	1	0	0	0								Sl				p	i
MR-46	163	164	88	m	p	P	Lr	c	m	f	m	vc	2	0	0	0	0					2			Sl;Sh				p	f
MR-46	164	165	80	m	m	Pu	M	c	w	f	c	vc	5	1	0	0	0					2			Sl;Sh					
MR-46	165	166	70	m	m	M	M	c	w	f	c	vc	8	2	0	0	0	g	0.5	M	l	3			Sl;Sh					
MR-46	166	167	95	m	d	M	U	c	w	y	y	c	3	0	40	0	0									Fh	M1			
MR-46	167	168	98	m	d	M	U	c	w	y	y	c	3	0	75	0	0					1			Sm		Mh			
MR-46	168	169	87	a	m	Pu	M	c	w	m	c	vc	22	3	0	0	0	w	1						Sm					
MR-46	169	170	100	a	m	Pu	M	c	w	m	c	vc	18	3	0	0	0								Sm;Sl					
MR-46	170	171	100	a	m	Pu;Gn	M	c	w	m	c	g	20	15	0	0	0							Gh	Sm;Sl					
MR-46	171	172	100	a	m	Pu;P;Gn	M	c	w	m	c	ps	35	30	0	0	14							Gh	Sm			Pm		
MR-46	172	173	97	a	m	Pu;P;Gn	M	c	w	m	c	vc	20	8	0	0	0								Sm					
MR-46	173	174	100	a	m	P;Pu;Gn	M;B	c	w	m	c	g	10	20	0	0	8	w	1.7			2		Gh	Sm;Sl			Pm		
MR-46	174	175	100	a	m	P;Pu;Gn	M;B	c	w	f	c	g	10	9	0	0	0					5			Sm;Sx			Pm;Ph		
MR-46	175	176	97	a	m	Pu;P	M	c	w	m	c	vc	22	7	0	6	0	p	0.3			5			Sx		Mh		p	f
MR-46	176	177	100	a	m	M;P	B	c	w	s	c	g	21	10	1	24	4					7		Gh	Sm;Sx		Mh		p	f
MR-46	177	178	87	a	m	M;P;Gn	B;M	c	w	s	m	vc	8	5	0	11	0	w	1.2			1			Sm		Mh			
MR-46	178	179	95	a	p	P;Gn	Lr;B	c	w	m	c	g	28	10	0	0	2					2		Gh;G1	Sl			Ph	p	f
MR-46	179	180	98	a	p	P	Lr	c	w	f	c	g	16	10	0	0	2					5		Gh	Sm	Fx		Ph	p	f
MR-46	180	181	100	a	p	P	Lr	c	w	m	c	vc	45	8	0	0	0					2		G1	Sm			Ph	p	f
MR-46	181	182	96	a	m	C;Pu;Gn	M	e	w	m	c	vc	18	3	0	0	0					3			Sm					
MR-46	182	183	100	a	p	P;Gn	Lr	c	w	m	c	vc	20	4	0	0	0								Sm					
MR-46	183	184	100	a	m	Gn;Pu;P	M	c	w	f	c	vc	30	6	0	0	0					1			Sm;Sl				p	f
MR-46	184	185	99	a	p	P	Lr	c	w	m	c	vc	12	4	0	0	0					5			Sm					
MR-46	185	186	100	a	p	P;Pu	M	c	w	m	c	vc	22	3	0	0	0					10			Sm				p	f
MR-46	186	187	100	a	p	P;Pu	M	c	w	m	c	vc	18	7	0	0	0	d	0.3			2			Sm			Pm;Ph		
MR-46	187	188	95	a	p	P;Pu	M	c	w	m	c	ps	55	34	0	0	4					1		Gh	Sm			Pm		
MR-46	188	189	100	a	m	P;Pu	M	c	w	m	c	vc	12	5	0	0	0								Sm					
MR-46	189	190	100	a	m	Pu;P;Gn	M	c	w	m	c	g	20	8	0	0	0					4			Sm			Pm		
MR-46	190	191	95	a	p	C;Pu	M	c	w	m	c	g	15	10	0	0	4					3		Gh	Sm			Ph		
MR-46	191	192	100	a	p	C;Pu;Gn	M	c	w	m	c	g	26	10	0	0	0					2			Sm					
MR-46	192	193	100	a	m	C;Pu	M	c	w	m	c	g	20	3	0	0	2					1		Gh	Sm					
MR-47	41	42	50	tm	p	C	Lr,Sr	c	w	f	f	m	3	0	0	0	0									Fr			t	i
MR-47	42	43	100	tm	p	C	Ld	c	w	f	m	m	3	0	0	0	0			Bn	l				Sl;Sr					
MR-47	43	44	100	t	p	C,Y	Ld	c	w	f	f	m	3	1	0	0	0			Bk	d	1	s			Fr				
MR-47	44	45	99	t	p	C,Y	Lr	c	w	f	f	m	3	1	0	0	0			Bk	d	5			Sr	Fr				
MR-47	45	46	99	t	p	C,Y	Lr	c	w	f	f	m	2	0	0	0	0			Bk	d	3				Fr				
MR-47	46	47	100	tm	p	C	Lr	c	w	f	m	m	3	1	0	0	0								Sr	Fx				
MR-47	47	48	100	t	p	C	Lr	c	w	f	f	m	8	1	0	0	0			Bk	d		s			Fx;Fm			t	i
MR-47	48	49	100	t	p	C	Lr	c	w	f	f	m	3	0	0	0	0									Fr				
MR-47	49	50	92	tm	p	C	Lr	c	w	f	m	m	11	1	0	0	0	w	0.5			2		G1	Sr	Fmn				
MR-47	50	51	100	tm	p	P,Y	Lr	c	w	f	m	m	15	2	0	0	0	d	0.2			3		G1	Sr					

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-46	139	140	0.1								
MR-46	140	141	0.1								Missing core
MR-46	141	142	0.1								
MR-46	142	143	0.1								
MR-46	143	144	0.1								
MR-46	144	145	0.1								
MR-46	145	146	0.1								
MR-46	146	147	0.1	ft	20	y	2				
MR-46	147	148	0.5								
MR-46	148	149	0.1;2								
MR-46	149	150	0.1								
MR-46	150	151	0.1;1								
MR-46	151	152	0.1;2								Jigh abundance o heaby mineral laminae
MR-46	152	153									Abundant heavy mineral laminae
MR-46	153	154									Bottom 40 cm is hematite rich, more clay rich, containing thin red silt intraclast-possible contact at 153.6 m.
MR-46	154	155									Thin red siltstone intraclasts. Missing core due to sampling
MR-46	155	156									Bedding not well defined, looks horizontal
MR-46	156	157									Abundant clay drapes
MR-46	157	158									
MR-46	158	159	0.1;3								
MR-46	159	160	0.1;2								
MR-46	160	161	5								
MR-46	161	162									
MR-46	162	163	8								Missing core
MR-46	163	164	0.1								Well silicified. Missing core
MR-46	164	165									Green lined and around bedding planes. Half core
MR-46	165	166									Hematite rich-almost replacment clay.. Half core.
MR-46	166	167									Bottom part of core is red mudstone with possible rip ups or oncolites? Hematite looks like it replaced beds in mudstone
MR-46	167	168									Most of core is hematite rich mudstone. Base grades into a coarse grained sandstone - FP/MF contact - 167.75 m.
MR-46	168	169									Intraclast is red. Missing core - sample taken
MR-46	169	170									
MR-46	170	171									Floating pebbles
MR-46	171	172									Clast consist of quartz, regolith, ss
MR-46	172	173									
MR-46	173	174									
MR-46	174	175		fr	30	qo	6				Green mineral concentrates in fine gr beds. Silcified fracture contains bitumen
MR-46	175	176	0.1								
MR-46	176	177	0.1								
MR-46	177	178									Silt and clay bed rip ups throughout. Missing core - sample taken
MR-46	178	179	0.1	ft	30	y	2				
MR-46	179	180	0.1								
MR-46	180	181	0.1	fr	20	qo	3				
MR-46	181	182						fo	y	25	
MR-46	182	183									
MR-46	183	184	0.1								Some clasts are regolith
MR-46	184	185		ft	30	y.	1				
MR-46	185	186	0.5	ft	20	y	15				
MR-46	186	187		fr	30	y	1				
MR-46	187	188									Mostly pebbly ss. Clast are quartz, regolith, igneous rocks
MR-46	188	189									
MR-46	189	190						fo	y	15	
MR-46	190	191									
MR-46	191	192									
MR-46	192	193									Unconformity at 192.08 m - slight angle. C. gr. ss at base with granule-sm. pebble sized thin conglomerate just above
MR-47	41	42	1								The hole starts at 41.5m
MR-47	42	43									
MR-47	43	44									
MR-47	44	45		fr	40	py					
MR-47	45	46									
MR-47	46	47									
MR-47	47	48	2								
MR-47	48	49									
MR-47	49	50									
MR-47	50	51		ft	60	y	10				

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSSG Grain Size	PSSS Grain Size	PSSF Grain Size	PSSM Grain Size	PSSP Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-47	51	52	100	tm	p	C	Lr	c	w	f	m	c	6	2	0	0	0					2	s		Sr					
MR-47	52	53	98	tm	p	C	U	c	w	f	m	c	5	1	0	0	0								Sl				t	i
MR-47	53	54	100	tm	p	C	Lr	c	w	f	m	c	13	3	0	0	0			Bk	d		s		Sr				t	i
MR-47	54	55	100	t	p	P	Lr,Sr	c	w	f	m	c	6	2	0	0	0					1	s2		Sr				t	i
MR-47	56	57	92	tm	m	P	Ld	c	w	f	m	c	6	1	0	0	0					3	s2		Sr				t	i
MR-47	57	58	100	t	m	P	Ld	c	w	f	m	vc	7	3	0	0	0					3	s		Sr				t	i
MR-47	58	59	97	mt	m	P	Lr	c	w	f	m	m	3	1	0	0	0					4			Sr				t	i
MR-47	59	60	100	t	m	P	Ld	c	w	f	m	c	5	3	0	0	0					5			Sr				t	i
MR-47	60	61	100	t	p	P	-Lr	c	w	f	m	m	2	0	0	0	0					1			Sr	Fm				
MR-47	61	62	92	tm	m	P	Ld	c	w	f	m	m	9	1	0	0	0								Sr					
MR-47	62	63	100	tm	p	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.1	Bn	d				Sr;Sm;Sl					
MR-47	63	64	100	t	m	P,Pu	Lr,B	c	w	f	m	m	1	0	0	0	0	b	2	Bn	d	2			Sr	Fm				
MR-47	64	65	80	tm	m	P	Lr	c	w	f	f	m	1	0	0	0	0	b	0.4							Fr;Fm				
MR-47	65	66	100	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.6			2			Sr;Smn					
MR-47	66	67	99	tm	m	P	Lr,Sr	c	w	f	f	m	1	0	0	0	0					4				Fx;Fm				
MR-47	67	68	98	tm	m	P	Lr	c	w	f	m	m	1	0	0	0	0	g	0.2			3			Sr				t	f
MR-47	68	69	100	tm	m	C	Lr	c	w	f	m	m	1	0	0	0	0	g	0.5						Sr					
MR-47	69	70	100	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	g	0.4			5			Sr;S?					
MR-47	70	71	100	tm	p	P	U	c	w	f	m	m	1	0	0	0	0	w	0.7			5			Sr	Fm				
MR-47	71	72	100	t	p	P	Sp	c	w	f	m	m	1	0	0	0	0	p	0.2			9			Sr				t	f
MR-47	72	73	100	tm	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	p	0.2			11			Sx	Fm			t	f
MR-47	73	74	100	t	p	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0					7			Sr;Sx				t	f
MR-47	74	75	100	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0	g	0.3			4			Sr	Fm				
MR-47	75	76	100	tm	p	P	Lr	c	w	f	m	m	1	0	0	0	0	g	0.5			5			Sr;Sx					
MR-47	76	77	99	tm	p	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0			Bn	d	7			Sr					
MR-47	77	78	100	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0					2			Sr				t	f
MR-47	78	79	100	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2			2			Sr;Sl				t	f
MR-47	79	80	97	tm	p	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.3			1			Sr					
MR-47	80	81	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	g	0.5	Bn	d	7			Sr					
MR-47	81	82	100	tm	p	P	Lr	c	w	f	m	m	1	0	0	0	0			Bn	d	1			Sr	Fm				
MR-47	82	83	97	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					3			Sr;Sl					
MR-47	83	84	100	t	p	C	U	c	w	f	m	m	1	0	0	0	0	w	0.6						Sr					
MR-47	84	85	98	t	p	C	U	c	w	f	m	m	1	0	0	0	0	w	0.8			3			Sr					
MR-47	85	86	98	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0					13			Sr					
MR-47	86	87	94	t	p	C	Lr	f	w	f	m	m	1	0	0	0	0			Bk	d	30			Sr					
MR-47	87	88	90	t	p	P	Lr,Sr	f	w	f	m	m	1	0	0	0	0			Bk	d	30			Sr					
MR-47	88	89	70	tm	p	C	U	c	w	f	m	m	1	0	0	0	0	d	0.2			12			Sr;Sm					
MR-47	89	90	98	tm	p	C	U	c	w	f	m	m	1	0	0	0	0			Bk	d	13			Sr;Sm					
MR-47	90	91	100	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0					14				Fr			t	f
MR-47	91	92	97	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0					25				Fr				
MR-47	92	93	99	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0					11				Fr				
MR-47	93	94	100	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2			3			Sr					
MR-47	94	95	86	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.4			2			Sr;Sm					
MR-47	95	96	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	w	1.4			7			Sr					
MR-47	96	97	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.2			8			Sr					
MR-47	97	98	75	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					2			Sr					
MR-47	98	99	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					9			Sr					
MR-47	99	100	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.3			3			Sr					
MR-47	100	101	96	t	p	C	Lr,Sr	c	w	f	f	m	1	0	0	0	0	p	0.4	Bn	l	1				Fr				
MR-47	101	102	100	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0			Bn	l	4				Fr;Fm				
MR-47	102	103	100	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0			Bn	d	5			Sr					
MR-47	103	104	95	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.1	Bn	d	3			Sr;Sm					
MR-47	104	105	98	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0			Bn	d	10			Sr;Sm				t	f
MR-47	105	106	98	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.1	Bk	d	9			Sr	Fm			t	f
MR-47	107	108	98	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.1			11			Sr				t	f
MR-47	108	109	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2			6			Sr				t	f
MR-47	109	110	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					8			Sr				t	f
MR-47	110	111	100	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0	p	0.1			7				Fr;Fm			t	f
MR-47	111	112	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2	Gn	l	25			Sr	Fr			t	f
MR-47	112	113	98	tm	p	C	Lr	f	n	f	m	m	1	0	0	0	0					30			Sr;Sl				t	f
MR-47	113	114	99	tm	p	C	U	c	w	f	m	m	1	0	0	0	0					20			Sr				t	f
MR-47	114	115	100	tm	p	C	Lr	c	w	f	f	m	1	0	0	0	0					15				Fl;Fm			t	f
MR-47	115	116	95	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					15			Sr				t	f
MR-47	116	117	98	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0					20				Fr			t	f

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-47	51	52									
MR-47	52	53	22								
MR-47	53	54	6								
MR-47	54	55	10								
MR-47	56	57	1	fr	20	y					Bedding is steepened to 80 degrees
MR-47	57	58	10	fd	10	qo					
MR-47	58	59	3								
MR-47	59	60	22								
MR-47	60	61									
MR-47	61	62									LzL/MF contact around 61.48m (first pebble) to 61.9m (first v.c. to granule bed)
MR-47	62	63									
MR-47	63	64									1cm thick intraclast layer-looks like it is in a contorted bed-odd shapes
MR-47	64	65									
MR-47	65	66									
MR-47	66	67									
MR-47	67	68	0.5								
MR-47	68	69									
MR-47	69	70		fr;fr	50;20	y;qd	1;1				
MR-47	70	71		fd;fr	15;30	n;qd	1				
MR-47	71	72	1	fr;fr	30;40	qd;qd	1;1				
MR-47	72	73	1	fd;fd;fr	20;30;40	y;qo;qo	1;1;1				Silicified fractured zpne at base as well as silicified fault/fractures throughout
MR-47	73	74	1	fd	10	y	1				
MR-47	74	75		fr	30	qd	1				
MR-47	75	76		fr	40	qd	1				
MR-47	76	77		fr	30	qd	30				
MR-47	77	78	0.5	ft	30	su	6				
MR-47	78	79	0.5	fd	10	qo					
MR-47	79	80		fr	20	y	3				
MR-47	80	81									
MR-47	81	82									
MR-47	82	83									
MR-47	83	84									
MR-47	84	85		fr	80	y	1				
MR-47	85	86									
MR-47	86	87		ft	5	su	15				Highly fractured and faulted area with some breccias and filled with fault gouge, broken core
MR-47	87	88									Highly fractured and faulted area, broken core
MR-47	88	89									
MR-47	89	90									
MR-47	90	91	1								
MR-47	91	92									fractured and broken core
MR-47	92	93									
MR-47	93	94									
MR-47	94	95		fr	30	py					
MR-47	95	96									
MR-47	96	97									
MR-47	97	98									
MR-47	98	99									
MR-47	99	100		fr	40	y	2				
MR-47	100	101									
MR-47	101	102									
MR-47	102	103		fd	30	qo	2				
MR-47	103	104		fd	20	qo	1				
MR-47	104	105	0.5	fd;fr	30;20	y;y	1;1				faulted/fractured zone filled with clay
MR-47	105	106	0.5								
MR-47	107	108	0.5								
MR-47	108	109	0.5								
MR-47	109	110	0.5								
MR-47	110	111	0.5	ft	30	y	1				
MR-47	111	112	0.5	fr	70	py					
MR-47	112	113	0.5	fs;fr	5;15	g;y	1				Highly fractured and faulted with clay infilled; broken core
MR-47	113	114	0.5								
MR-47	114	115	0.5	ft	20	y	5				
MR-47	115	116	0.5								
MR-47	116	117	0.5								Broken core

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-47	117	118	99	t	p	C	Lr	c	s	f	f	m	1	0	0	0	0					20				Fm;Fx			t	f
MR-47	118	119	99	tm	p	C	Lr	c	w	f	f	m	1	0	0	0	0	d	0.3			20			Sr				t	f
MR-47	119	120	97	t	p	C	Lr	c	e	f	m	m	1	0	0	0	0	d	0.2			30			S?;Sr				t	f
MR-47	120	121	97	t	p	C	U	c	s	f	f	m	1	0	0	0	0					40				F?			t	f
MR-47	121	122	85	t	p	C	Lr	c	m	f	m	m	1	0	0	0	0					30			Sr				t	f
MR-47	122	123	98	t	p	C	U	c	m	f	m	m	1	0	0	0	0					40			S?				t	f
MR-47	123	124	98	t	p	C	Lr	c	m	f	f	m	1	0	0	0	0					30				Fr;Fm			t	f
MR-47	124	125	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	g	0.5			20			Sr				t	f
MR-47	125	126	100	tm	p	C	Lr	c	w	f	f	m	1	0	0	0	0	p	0.6			20				Fr;Fm			t	f
MR-47	126	127	96	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0	w	0.6			15				Fr			t	f
MR-47	127	128	98	t	p	P	U	f	w	f	m	m	1	0	0	0	0	p	0.5			15			Sr				t	f
MR-47	128	129	98	tm	p	C	Lr	c	s	f	m	m	1	0	0	0	0					50			S?					
MR-47	129	130	98	t	p	C	Lr	e	m	f	m	m	1	0	0	0	0					40			S?				t	f
MR-47	130	131	90	t	p	C	Lr	c	s	f	m	m	1	0	0	0	0					30			Sr				t	f
MR-47	131	132	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					20			Sx				t	f
MR-47	132	133	98	t	p	C	Lr	c	m	f	f	m	1	0	0	0	0					25				Fm;F?			t	f
MR-47	133	134	95	t	p	P	Lr	c	m	f	m	m	1	0	0	0	0					25			S?;Sr					
MR-47	134	135	99	tm	p	P	Lr	c	m	f	m	m	1	0	0	0	0					30			S?				t	f
MR-47	135	136	98	tm	p	P	Lr	c	m	f	m	m	1	0	0	0	0					30			S?;Sr				t	f
MR-47	136	137	95	t	p	P	Lr	e	w	f	m	m	1	0	0	0	0					50			S?				t	f
MR-47	137	138	98	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0					30			Sr				t	f
MR-47	138	139	97	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0					20			Sr				t	f
MR-47	139	140	90	tm	p	C	Lr	e	w	f	m	m	1	0	0	0	0					30			Sr				t	f
MR-47	140	141	97	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					30			Sr				t	f
MR-47	141	142	97	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0					40			Sr;Sm				t	f
MR-47	142	143	97	tm	p	C	Lr	c	w	f	f	m	1	0	0	0	0					20				Fr			t	f
MR-47	143	144	96	t	p	C	Lr	c	w	f	f	m	1	0	1	0	0					20				Fr;Fm	Mh		t	f
MR-47	144	145	98	t	p	C	Lr	c	w	vf	f	m	1	0	0	0	0					20				Fr;Fh			t	f
MR-47	145	146	98	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					20			Sr				t	f
MR-47	146	147	96	tm	p	C	U	f	w	f	m	m	1	0	0	0	0					40			Sr;S?				t	f
MR-47	147	148	98	t	p	C	U	c	w	f	m	m	1	0	0	0	0					30			Sr				t	f
MR-47	148	149	95	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					20			Sr				t	f
MR-47	149	150	99	t	p	C	Lr	c	m	f	m	m	1	0	0	0	0					20			Sr				t	f
MR-47	150	151	97	t	p	C	Lr	c	w	f	m	c	1	0	0	0	0					12			Sr	Fm			t	f
MR-47	151	152	96	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0					30				Fr			t	f
MR-47	152	153	98	t	p	C	Lr	c	w	f	m	c	3	1	0	0	0					16			Sr				t	f
MR-47	153	154	98	t	p	C	Lr	c	w	f	m	c	3	1	0	0	0					20			Sr;Sm				t	f
MR-47	154	155	98	tm	p	C	Lr	c	w	f	m	c	3	1	0	0	0					20			Sr				t	f
MR-47	155	156	98	tm	p	C	Lr	c	s	f	m	c	3	1	0	0	0					25			S?				t	f
MR-47	156	157	98	tm	p	C	Lr	c	m	f	m	c	3	1	4	0	0					20			Sr;Sm				t	f
MR-47	157	158	84	tm	p	C	Lr	c	w	f	m	c	3	1	0	0	0					40			Sr;S?				t	f
MR-47	158	159	95	tm	p	C	U	c	m	f	m	c	3	1	0	0	0					40			Sr				t	f
MR-47	159	160	98	tm	p	C	Lr	c	w	f	m	vc	4	2	0	0	0	w	0.9			15			Sr				t	f
MR-47	160	161	84	m	p	C	Lr	c	m	f	c	c	3	2	0	0	0					5			Sm;Sr				t	f
MR-47	161	162	96	a	p	C	U	c	s	f	c	c	3	2	0	0	0					15			Sm				t	f
MR-47	162	163	98	a	p	C,O	B	c	w	m	c	c	11	4	0	0	0					7			Sm				t	f
MR-47	163	164	99	a	p	C	Lr	c	w	m	c	c	5	3	0	0	0					6			Sm				t	f
MR-47	164	165	99	a	p	C	U	c	w	m	c	vc	5	2	0	0	0					6			Sm				t	f
MR-47	165	166	100	a	p	C	Lr	c	w	m	c	vc	5	3	0	0	0					3			Sm					
MR-47	166	167	97	a	p	C	Lr	c	w	m	c	vc	5	2	0	0	0					6			Sm				t	f
MR-47	167	168	98	a	p	P	U	c	w	m	c	vc	3	2	0	0	0					20			Sm				t	f
MR-47	168	169	100	a	p	C	U	c	w	m	c	c	20	2	0	0	0					4			Sm				t	f
MR-47	169	170	82	a	p	C	Lr	c	w	m	c	c	5	2	0	0	0					4			Sm					
MR-47	170	171	100	a	p	C	Lr	c	w	m	c	vc	5	2	0	0	0					4			Sm					
MR-47	171	172	98	a	p	C,Pu	M	c	w	m	c	vc	8	2	0	0	0					5			Sm				t	f
MR-47	172	173	94	a	m	P	Sd	c	w	m	c	g	17	5	0	0	0					5			Sm				t	f
MR-47	173	174	96	a	m	P	Sr	c	w	m	c	c	4	1	1	0	0					4			Sm					
MR-47	174	175	98	a	p	P	Lr,Sr	c	w	m	c	vc	8	4	0	0	0					1			Sm					
MR-47	175	176	100	a	p	P, Pu,Gn	M	c	w	m	c	vc	38	5	0	0	0					3			Sm					
MR-47	176	177	100	a	m	P,M,Gn	M	c	w	m	c	vc	25	3	0	0	0					4			Sm					
MR-47	177	178	98	a	m	P,Pu,Gn	M	c	w	m	m	c	20	2	0	0	0					3			Sm					
MR-47	178	179	99	a	p	P,Gn	M	c	w	m	c	vc	40	8	0	0	0	w	0.6			8			Sm				t	f
MR-47	179	180	100	a	m	P,Pu,Gn	M	c	w	m	c	ps	51	28	0	0	14					5		Gh	Sm			Pm	t	f
MR-47	180	181	100	a	p	P,Gn	M	c	w	m	c	ps	27	20	0	0	7					5		Gm	Sm			Pm		

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct.FF Cement	Tec. Struct.FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-47	117	118	0.5	fr	60	qo	80				A tombstone silicified section in a fractured zone, broken core
MR-47	118	119	1	ft	20	y	1				
MR-47	119	120	0.5	fr	60	qo	400				Highly silicified and fractured zone, clay within fractures
MR-47	120	121	0.5	fr;fr	60;10	qo;y	160;10				Highly silicified and fractured, clay along many fractures, broken core
MR-47	121	122	0.5								Highly fractured and silicified, broken core
MR-47	122	123	1	fr	40	y	2				Highly fractured and silicified, broken core
MR-47	123	124	1								Highly fractured. broken core
MR-47	124	125	0.5								
MR-47	125	126	1								
MR-47	126	127	1								
MR-47	127	128	0.5	ft	40	su	30				Bottom of metre is friable and fractured/faulted?
MR-47	128	129		fr;ft		qo;su	550;450				Metre completely fractured and bottom half silicified - top half has fault gouge
MR-47	129	130	0.5	fr		qo	200				Highly fractured and silicified
MR-47	130	131	1	ft		qo	450				Silicified fractured and tombstone at top
MR-47	131	132	1	ft	10	qo	5				fractures clay filled pr silicifoed
MR-47	132	133	1	ft	40	sc	60				Fractured and silicified
MR-47	133	134		fr		qo	3				Sicified fractures
MR-47	134	135	1	fr		qo	3				silicified fractures, broken core
MR-47	135	136	1	fr		qo	5				Silicified fractures, bleached alonf fract.
MR-47	136	137	3								broken core over whole metre
MR-47	137	138	3	ft;fr	10;15	y;py	3				
MR-47	138	139		ft	60	su	20				Broken core
MR-47	139	140	2	ft	10	su	25				Broken core
MR-47	140	141	4								
MR-47	141	142	4								
MR-47	142	143	3								
MR-47	143	144	1	ft	30	sc	30				
MR-47	144	145	2								Broken core
MR-47	145	146	2								Broken core
MR-47	146	147	4	ft	40	su	30				Broken core
MR-47	147	148	1	ft	10	su	30				Broken core
MR-47	148	149	1								
MR-47	149	150	2	ft	40	qo	15				
MR-47	150	151	1								
MR-47	151	152	2								
MR-47	152	153	0.5	ft	40	y	3				
MR-47	153	154	1								
MR-47	154	155	1	ft	30	y	2				
MR-47	155	156	0.5	ft;fr	30	sc;qo	150;200				Silicified zones, clay rich fault? zones, broken core
MR-47	156	157	1	ft	20	su	5				Silicified and cay filled fractures/faults
MR-47	157	158	6	ft	30	su	10				Highly fractured and broken
MR-47	158	159	4								broken core
MR-47	159	160	1	ft	10	qo	2				
MR-47	160	161	0.5	ft	10	qo	20				MF/FP contact at 160.18m, c. gr. ss below contact-sharp-m □□gr. ss above, 10cm thick med. ss 7cm below contact (poss MF?)
MR-47	161	162	1	ft;ft	10;10	qo;n	50				Orange coloured f-m gr. ss throughout metre-could be MF, sharp contacts with FP c gr. ss-see clast of FP
MR-47	162	163	0.5	ft	20	y	1				Last orange f-m gr. ss-sharp contacts, has pebbles at base, base at 162.75m-poss MF/FP contact?
MR-47	163	164	1	fr	20	y	1				
MR-47	164	165	0.5								
MR-47	165	166									
MR-47	166	167	0.5	ft	30	y	400				
MR-47	167	168	5	ft;ft	30;40	y;y	10;7				
MR-47	168	169	0.5	fr	20	y	2				
MR-47	169	170		fr	40	y	1				
MR-47	170	171		fr	10	y	1				
MR-47	171	172	0.5								
MR-47	172	173	0.5	fr	10	y	1				
MR-47	173	174									
MR-47	174	175									
MR-47	175	176						fo	y	1	Clay in replaced zone is a green colour
MR-47	176	177						fo;fo	y;y	20;50	Large fault running through , filled with red clay
MR-47	177	178						fo	y	60	Large fault with replaced clay-but purple colour
MR-47	178	179	1	ft	20	y	2				
MR-47	179	180	0.5								
MR-47	180	181		fr	30	y	1	fo	y	25	Replaced fault is filled with clay with green tinge

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-47	181	182	98	a	p	C,Gn	M	c	w	m	c	ps	16	11	0	0	0					2			Sm					
MR-47	182	183	100	a	p	P,Gn	M	c	w	m	c	vc	10	6	0	0	0					6			Sm					
MR-47	183	184	99	a	p	P,Gn	F	c	w	m	c	g	13	11	0	0	0					7			Sm					
MR-47	184	185	95	a	p	P,Gn	B	c	w	m	c	g	30	6	0	0	0	d	0.2			2			Sm					
MR-47	185	186	98	a	m	P,Gn	M	c	w	m	c	vc	40	7	0	0	0					5			Sm					
MR-47	186	187	100	a	p	P	U	e	w	m	c	ps	30	25	0	0	23					7		Gh	Sm					
MR-47	187	188	88	a	p	P	Lr	c	w	m	c	vc	53	6	0	0	0					4			Sm					
MR-47	188	189	188	a	m	P,M	M	c	w	m	c	g	69	8	0	0	8					2		Gh	Sm					
MR-47	189	190	189	a	p	P	Lr	c	w	m	c	vc	8	3	0	0	0					2			Sm					
MR-47	190	191	98	a	m	P	Lr	c	w	m	c	g	30	14	0	0	2					2		Gm	Sm			Pm		
MR-47	191	192	100	a	p	P,Gn	F	c	w	m	c	ps	38	30	0	0	2					2		Gm	Sm			Pm		
MR-47	192	193	100	a	m	P,Pu,Bn	M,F	c	w	m	c	g	28	15	0	0	6					3		Gm	Sm			Pm		
MR-47	193	194	95	a	m	P,Pu,Gn	M	c	w	m	c	c	7	2	0	0	0					5			Sm					
MR-47	194	195	98	a	p	P,Pu,M,C	F	f	w	m	c	c	5	1	0	0	0					2			Sm					
MR-47	195	196	100	a	p	P,Pu,Gn,I	M	f	w	m	c	vc	13	3	0	0	0					3			Sm					
MR-47	196	197	100	a	m	P,Pu,Gn	M	c	w	m	c	g	13	8	0	0	0					3			Sm					
MR-47	197	198	100	a	m	C,Pu,O	M	e	w	m	c	g	20	12	0	0	0					2			Sm			Pm		
MR-47	198	199	100	a	m	C,Pu	M	c	w	m	c	vc	25	4	0	0	0					2			Sm					
MR-48	21	22	99	tm	p	C	Lr	c	m	f	m	m	3	1	0	0	0			Bk	d				Sr					
MR-48	22	23	99	tm	p	C	Lr	c	m	f	m	m	3	1	0	0	0			Bk	d	1	s		Sr					
MR-48	23	24	98	tm	p	C	Lr,Sr	c	w	f	m	c	2	0	0	0	0								Sr					
MR-48	24	25	98	t	p	C,Y	Lr	c	m	f	m	c	7	2	0	0	0			Bk	d				Sr				t	i
MR-48	25	26	95	t	p	C,Y	B	c	m	f	m	c	2	0	0	0	0			Bk	d				Sr;Sm				t	i
MR-48	26	27	98	t	p	C,Y	Lr	c	m	f	m	c	8	2	0	0	0			Bk	d	0			Sr				t	i
MR-48	27	28	99	t	p	P	Lr	c	m	f	m	c	4	1	0	0	0								Sr					
MR-48	28	29	97	mt	p	C	Lr,Sr	c	m	f	m	c	8	2	0	0								G1	Sr				t	i
MR-48	29	30	97	tm	p	P,Y	Lr,Sr	c	m	f	m	c	2	0	0	0	0			Bk	d	2			Sr;Sm					
MR-48	30	31	98	mt	p	C	Lr	c	m	f	m	c	6	2	0	0	0					1			Sr;Sm					
MR-48	31	32	97	tm	p	C	Lr	c	m	f	m	c	3	2	0	0	0					3	s		Sr				t	f
MR-48	32	33	98	t	p	C	Lr,Sr	c	m	f	m	vc	4	2	0	0	0					4			Sr;Sl				t	f
MR-48	33	34	99	mt	p	P	Lr,Sr	c	m	f	m	vc	25	3	0	0	0					4		G1	Sx;S?				t	f
MR-48	34	35	98	mt	p	P	Lr	c	m	f	m	c	3	1	0	0	0					1			Sr;Sl				t	f
MR-48	35	36	99	tm	p	P	Lr	c	m	f	m	c	8	2	0	0	0					2			Sr			Pl	t	f
MR-48	36	37	98	tm	p	P	Lr,Sr	c	m	f	m	c	2	0	0	0	0			Bk	d	9			Sr;Sl				t	f
MR-48	37	38	92	t	p	P	Lr	c	m	f	m	c	9	1	0	0	0					5			Sr;Sl				t;t	i;f
MR-48	38	39	98	t	p	P	Lr	c	s	f	m	c	6	1	0	0	0					6			Sm;Sr				t	f
MR-48	39	40	99	tm	p	P	Lr	c	s	f	m	m	8	1	0	0	0					6			Sr				t	f
MR-48	40	41	99	tm	p	P	Lr	c	s	f	m	c	3	1	0	0	0			Bn	d	6			Sr;Sl				t	i
MR-48	41	42	98	t	p	P	Lr	c	m	f	m	c	9	1	0	0	0			Bk	d	3			Sr;Sl				t	i
MR-48	42	43	98	tm	p	P	Lr	c	m	f	m	m	6	1	0	0	0								Sr					
MR-48	43	44	99	tm	p	P	Lr	c	m	f	m	c	8	2	0	0	0					2			Sr				t	f
MR-48	44	45	98	tm	p	P	Sp	c	m	f	m	m	1	0	0	0	0	d	0.2			2			Sr					
MR-48	45	46	98	mt	p	P	Lr	c	m	f	m	m	1	0	0	0	0					1			Sr				t	f
MR-48	46	47	98	tm	p	P	Lr	c	m	f	m	m	1	0	0	0	0	p	0.5			2			Sr					
MR-48	47	48	98	m	p	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0	b	0.6			4			Sr					
MR-48	48	49	99	tm	p	P	Lr,Sr	c	m	f	m	m	1	0	0	0	0	g	0.1			4			Sr	Fm			t	f
MR-48	49	50	98	tm	p	P	Lr	c	w	f	m	m	1	0	0	0	0	p	1			2			Sr					
MR-48	50	51	99	mt	m	P	Lr	c	w	f	m	m	1	0	0	0	0					4			Sm;Sx					
MR-48	51	52	99	tm	m	P	Lr	c	w	f	m	m	1	0	0	0	0	d	0.4			4			Sr;Sm				t	f
MR-48	52	53	99	t	p	P	Lr	c	w	f	m	c	1	0	0	0	0	w	1.2			1			Sx;Sl				t	i
MR-48	53	54	99	tm	m	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.5			2			Sr;Sm					
MR-48	54	55	99	tm	p	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0	p	0.2	Bn	l				Sr					
MR-48	55	56	97	t	m	P	Lr	c	w	f	m	m	1	0	0	0	0	g	0.3	Bn	d				Sr;Sl					
MR-48	56	57	99	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.6	Bn	d				Sr					
MR-48	57	58	99	tm	p	P	Lr	c	w	f	m	m	1	0	0	0	0	g	0.4	Bn	l				Sr					
MR-48	58	59	100	tm	p	P	Lr	c	m	f	m	m	1	0	0	0	0			Bn	l	1			Sr;Sl					
MR-48	59	60	99	tm	m	P	Lr	c	w	f	m	m	1	0	0	0	0	d	0.6			5			Sm;Sx				t	f
MR-48	60	61	99	mt	p	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0	p	0.7			4			Sx;Sm					
MR-48	61	62	99	tm	p	P	Lr	c	w	f	m	m	1	0	0	0	0	w	1.3			1			Sr;Sl	Fm			t	f
MR-48	62	63	99	tm	p	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2			4			Sr				t	f
MR-48	63	64	99	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.4						Sr;Sl					
MR-48	64	65	86	tm	p	P	Lr	c	w	vf	m	c	1	0	0	1	0			Bn	d				Sr;Sl					
MR-48	65	66	99	m	p	P	Lr	c	w	s	m	c	1	0	1	9	0	p	0.5			2			Sr					
MR-48	66	67	99	mt	p	C	U	c	w	f	m	m	1	0	0	0	0	w	0.5						Sr					

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-47	181	182									
MR-47	182	183		ft	50	y	17				
MR-47	183	184		ft;ft	20;10	y;y	10;8	fo	y	1	Clay infilinf faults bols light green
MR-47	184	185									
MR-47	185	186						fo	y	26	core completely repaced with clay in replaced fault
MR-47	186	187						fo;fo	y;y	8;3	
MR-47	187	188									
MR-47	188	189									
MR-47	189	190		ft	20	y	1				
MR-47	190	191									
MR-47	191	192						fo	y	4	Replaced clay in fault is brown colour
MR-47	192	193		fr	40	y	1	fo	y	7	replaced clay in fault is brown
MR-47	193	194		fr	20	n					
MR-47	194	195						fo	y	60	The clay replacement is cream/purple/maroon colour striped
MR-47	195	196						fo;fi;fi	y;y;y	24;8;3	Clay in fault zones are purple and brown colour
MR-47	196	197						fi	y	4	
MR-47	197	198									
MR-47	198	199									FP/basement contact at198.45m, sharp, one pebble 5cm above contact
MR-48	21	22									
MR-48	22	23									
MR-48	23	24									
MR-48	24	25	4								
MR-48	25	26	30								Yellow staining through out
MR-48	26	27	13								
MR-48	27	28									
MR-48	28	29	3								1st G1 layer
MR-48	29	30		fr;fr	15;15	py;qd					
MR-48	30	31		fd	5	qd					
MR-48	31	32	0.5								
MR-48	32	33	0.5	fr	20	s					
MR-48	33	34	0.5	fr	30	s					Base of Lzl. at 33.46 m marked by G1 pebble lag, large pebbles in G1 layer, hard to tell bedding
MR-48	34	35	0.5	fr	15	s					
MR-48	35	36	0.5	fr	15	s					
MR-48	36	37	0.5								
MR-48	37	38	0.5	fr	15	s					Silicified fault zone at base
MR-48	38	39	0.5	ft	25	qd	20				
MR-48	39	40	0.5	ft	40	qd	500				2 large silicified fault zones
MR-48	40	41	1	ft;bx	25;20	qd;py	100;10				Py filled brecciated fault, silicified fault zone at top
MR-48	41	42	1								
MR-48	42	43									
MR-48	43	44	0.5								
MR-48	44	45		fr	5	qd					Lose pebbles
MR-48	45	46	0.5								
MR-48	46	47		ft	20	y	1				
MR-48	47	48		fd	10						
MR-48	48	49	0.5								
MR-48	49	50									
MR-48	50	51		ft	10	s	2				Infilled fracture with possible siderite
MR-48	51	52	0.5								beginning of clay drapes
MR-48	52	53	1								
MR-48	53	54									
MR-48	54	55									
MR-48	55	56									
MR-48	56	57									
MR-48	57	58									
MR-48	58	59									
MR-48	59	60	0.5	ft	40	s	1				Possible siderite in fault, clay drapes
MR-48	60	61									
MR-48	61	62	0.5	fd	20	qd	1				
MR-48	62	63	0.5	fd	2;0	qd;py	1;0				
MR-48	63	64									
MR-48	64	65									Clay drapes
MR-48	65	66									
MR-48	66	67									

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-48	67	68	100	mt	p	C	Lr	c	w	f	m	c	1	0	0	0	0								Sr					
MR-48	68	69	98	tm	p	C	Lr	c	m	f	m	m	1	0	0	0	0	g	0.1			3			Sr;Sm					
MR-48	69	70	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					4			Sr;Sm					
MR-48	70	71	98	tm	p	P	Lr	c	w	f	m	c	1	0	0	0	0	g	0.2	Bn	d				Sr;Sm					
MR-48	71	72	99	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2						Sr					
MR-48	72	73	99	mt	p	C	U	c	w	f	m	c	1	0	0	0	0					2			Sr					
MR-48	73	74	98	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.1	Bn	d				Sr					
MR-48	74	75	99	tm	p	P	Lr,Sr	c	w	f	m	c	1	0	0	0	0	g	0.1						Sr;Sm					
MR-48	75	76	98	t	p	C	Lr	c	w	f	m	c	1	0	0	0	0								Sr;Sx					
MR-48	76	77	98	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	w	0.8						Sr;Sm					
MR-48	77	78	99	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.4	Bn	l				Sr					
MR-48	78	79	100	tm	p	C	Lr,Sr	c	w	f	m	c	1	0	0	0	0	p	0.3						Sr;Sm					
MR-48	79	80	94	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0			Bn	l				Sr;Sm					
MR-48	80	81	100	tm	p	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0								Sr					
MR-48	81	82	99	t	p	P	Lr	c	m	f	m	c	1	0	0	0	0					1			Sr;Sx					
MR-48	82	83	99	mt	p	C	Lr	c	w	f	m	c	1	0	0	0	0	p	0.3			1			Sr					
MR-48	83	84	100	mt	p	C	Lr	c	w	f	m	c	1	0	0	0	0	d	0.3	Bn	l				Sr					
MR-48	84	85	99	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2						Sr;Sm					
MR-48	85	86	96	t	p	C	Lr	c	w	f	m	c	1	0	0	0	0			Bk	d	2			Sr					
MR-48	86	87	98	tm	p	P	Lr	c	w	f	m	c	1	0	0	0	0					3			Sr;Sm					
MR-48	87	88	98	tm	p	C	Lr	c	w	f	m	c	1	0	0	0	0	w	0.4			1			Sr	Fm				
MR-48	88	89	98	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	g	0.1						Sr					
MR-48	89	90	99	t	p	P	Lr,M	c	w	vf	m	m	1	0	1			p	0.3	Bn	l				Sx	Fh				
MR-48	90	91	99	tm	p	P	Lr,Sr	c	m	f	m	m	1	0	0	0	0	p	0.1						Sr;Sl					
MR-48	91	92	96	mt	p	C	Lr	c	w	f	m	m	1	0	0	0	0								Sr	Fm				
MR-48	92	93	99	t	p	P	Lr	c	w	f	m	c	1	0	0	0	0	p	0.3			1			Sx;Sl					
MR-48	93	94	99	tm	p	C	Lr	c	w	f	m	c	1	0	0	0	0	g	0.5						Sr;Sl					
MR-48	94	95	99	tm	p	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0	d	0.9			1			Sr;Sm					
MR-48	95	96	99	tm	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	p	0.2						Sx;Sr					
MR-48	96	97	99	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2						Sr					
MR-48	97	98	95	tm	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	w	0.7	Bk	d	2			Sr					
MR-48	98	99	99	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.6						Sr					
MR-48	99	100	99	t	p	C	Lr,Sr	c	m	f	m	m	1	0	0	0	0					2			Sr				t	f
MR-48	100	101	100	t	p	C	Lr,Sr	c	m	f	m	c	1	0	0	0	0	p	0.1				r		Sr					
MR-48	101	102	99	t	p	C	Lr,Sr	c	m	f	m	m	1	0	0	0	0	p	0.3						Sm					
MR-48	102	103	99	tm	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	p	0.3			1			Sx;Sl					
MR-48	103	104	97	t	p	C	Lr	c	m	f	m	m	1	0	0	0	0								Sr;Sm;Sp					
MR-48	104	105	100	t	p	C	U	c	m	f	m	m	1	0	0	0	0	p	0.2						Sp;Sl					
MR-48	105	106	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.6			3			Sr;Sm;Sl				t	f
MR-48	106	107	99	tm	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	p	0.3						Sr					
MR-48	107	108	99	t	p	C	Lr,Sr	c	m	f	m	m	1	0	0	0	0	w	0.5			2			Sr					
MR-48	108	109	99	tm	p	C	Lr	c	m	f	m	m	1	0	0	0	0	p	0.4						Sr					
MR-48	109	110	99	t	p	C	Lr	c	m	f	m	m	1	0	0	0	0								Sr				t	i
MR-48	110	111	99	t	p	P	Lr,Sr	c	m	f	m	m	1	0	0	0	0	w	0.6			1			Sx				t	f
MR-48	111	112	99	tm	p	P	Lr	c	w	f	m	m	1	0	0	0	0	w	0.5						Sr				t	f
MR-48	112	113	98	t	p	P	Lr	c	m	f	m	m	1	0	0	0	0	d	0.8			1			Sx				t	f
MR-48	113	114	100	t	p	C	Lr	c	m	f	m	m	1	0	0	0	0	p	0.2			1			Sr				t	i
MR-48	114	115	90	t	p	C	Lr	c	m	f	m	m	1	0	0	0	0					3			Sm;Sx				t	f
MR-48	115	116	95	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0					5			Sx				t	f
MR-48	116	117	99	mt	p	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2			5			Sr				t	f
MR-48	117	118	99	tm	p	P	Lr	c	w	f	m	m	1	0	0	0	0	d	0.9			1			Sr;Sm					
MR-48	118	119	97	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0	w	0.4			3			Sm;Sx				t	f
MR-48	119	120	99	tm	p	P	Lr	c	w	f	m	m	1	0	0	0	0					1			Sm;Sr				t	f
MR-48	120	121	98	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0					11			Sx				t	f
MR-48	121	122	99	tm	p	P	Lr	c	w	f	m	c	1	0	0	0	0					30			Sr;Sm				t	f
MR-48	122	123	98	tm	p	P	Lr	c	s	f	m	m	1	0	0	0	0					11			Sr				t	f
MR-48	123	124	99	tm	p	C,Y	Lr	c	w	f	m	m	1	0	0	0	0	p	0.1			7			Sr				t	f
MR-48	124	125	97	tm	p	C,Y	Lr	c	w	f	m	c	3	0	0	0	0					7			Sr				t	f
MR-48	125	126	90	tm	p	P	Lr	c	w	f	m	c	3	1	0	0	0	p	0.3			4			Sr				t	f
MR-48	126	127	98	tm	p	P	Lr	c	w	f	m	m	3	0	0	0	0	w	0.5			7			Sr				t	f
MR-48	127	128	99	t	p	C	Lr	c	w	f	m	c	2	0	0	0	0					2			Sp;Sr					
MR-48	128	129	99	mt	m	P	Lr	c	w	f	m	c	3	1	0	1	0					5	r		Sr				t	f
MR-48	129	130	100	tm	p	P	Lr	c	w	f	m	m	2	0	0	0	0	p	0.1			1			Sr;Sm					
MR-48	130	131	99	tm	p	P	Lr	c	w	f	m	c	4	1	0	0	0					4			Sx;Sl				t	f

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-48	67	68									
MR-48	68	69		ft;bx;fd	30;30;20	y;sc;qd	5;30				3cm silicified breccia between clay faults
MR-48	69	70		fr	15	py					Clay drapes
MR-48	70	71									Clay drapes
MR-48	71	72									
MR-48	72	73									
MR-48	73	74									Clay drapes
MR-48	74	75									
MR-48	75	76									
MR-48	76	77									
MR-48	77	78									
MR-48	78	79									
MR-48	79	80									
MR-48	80	81									
MR-48	81	82									Clay drapes
MR-48	82	83									
MR-48	83	84									
MR-48	84	85									
MR-48	85	86									Clay drapec
MR-48	86	87									10cm of broken zone
MR-48	87	88									
MR-48	88	89									
MR-48	89	90									
MR-48	90	91									
MR-48	91	92									
MR-48	92	93									
MR-48	93	94									
MR-48	94	95									
MR-48	95	96									
MR-48	96	97									
MR-48	97	98		fr	30	py					
MR-48	98	99									
MR-48	99	100	0.5								
MR-48	100	101									
MR-48	101	102									
MR-48	102	103									
MR-48	103	104									
MR-48	104	105									
MR-48	105	106	1								
MR-48	106	107									
MR-48	107	108		fr	40	s					Poss siderite in fractures
MR-48	108	109									
MR-48	109	110	1								
MR-48	110	111	0.5								
MR-48	111	112	0.5								
MR-48	112	113	0.5								
MR-48	113	114	0.5	fd	20	y					
MR-48	114	115	1								
MR-48	115	116	0.5								
MR-48	116	117	1	fr	30	py					
MR-48	117	118									
MR-48	118	119	0.5								
MR-48	119	120	0.5								
MR-48	120	121	0.5	fr;fr	10;85	qd;py	1				Highly fractured and filled with tar and drusy quartz
MR-48	121	122	2	ft	15	y	5				Highly fractured and filled with tar and clay
MR-48	122	123	1	ft	20	y	40				Silicified zone by clay faults
MR-48	123	124	0.5								
MR-48	124	125	0.5								
MR-48	125	126	0.5								
MR-48	126	127	0.5								Alot of clay along bedding/clay drapes
MR-48	127	128									Clay drapes
MR-48	128	129	0.5								Start to see granule layers
MR-48	129	130									
MR-48	130	131	0.5								

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Darkness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSSG Grain Size	PSSS Grain Size	PSSF Grain Size	PSSM Grain Size	PSSP Grain Size	Hydrocarbon Type	Hydrocarbon Distrib.
MR-48	131	132	99	tm	p	P	Lr	c	w	f	m	c	2	0	0	0	0	g	0.2			1			Sl				t	f
MR-48	132	133	100	mt	m	P	Lr	c	w	f	m	c	2	0	0	0	0					3			Sm;Sl				t	f
MR-48	133	134	100	tm	m	P	Lr	c	w	f	m	c	2	0	0	0	0					4			Sx				t;t	f;i
MR-48	134	135	100	t	p	P	Lr	c	m	f	m	c	4	1	0	0	0	d	0.4			1			Sr				t	f
MR-48	135	136	100	tm	m	P	Lr	c	w	f	m	vc	3	1	0	0	0	p	0.8	Bn	d				Sx					
MR-48	136	137	97	tm	p	P	Lr	c	m	f	m	c	3	1	0	0	0					1			St;Sr					
MR-48	137	138	99	tm	m	P	Ld	c	m	f	m	vc	4	1	0	0	0	p	0.2	Bn	d	1			Sr				t	f
MR-48	138	139	100	tm	p	P	Lr	c	w	f	m	vc	4	1	0	0	0	d	0.1	Bn	d				St;Sr				t	i
MR-48	139	140	99	t	m	C	Ld	c	w	s	m	c	3	1	0	3	0	p	0.2						Sm;Sx					
MR-48	140	141	99	tm	m	P	Ld	c	w	s	m	vc	4	1	0	6	0	d	0.6			6			Sx		Mh		t	f
MR-48	141	142	100	tm	p	C	Lr	c	m	f	m	vc	3	1	0	0	0	w	0.8			2			Sr				t	f
MR-48	142	143	99	tm	p	P	Lr	c	m	f	m	vc	5	2	0	0	0	g	0.2			3			St;Sx				t	f
MR-48	143	144	99	tm	p	P	Lr	c	w	f	m	g	5	3	0	0	0					5			St;Sr			Px	t	f
MR-48	144	145	100	mt	p	C	U	c	w	f	m	c	4	1	0	0	0					3			St;Sr				t	f
MR-48	145	146	98	a	p	P	Lr	c	w	f	c	g	13	3	0	0	0	p	0.8			7			Sm;Sr				t	f
MR-48	146	147	100	a	p	C	U	c	w	m	c	g	5	4	0	0	0								Sm;Sx					
MR-48	147	148	100	a	p	P	Lr	c	w	c	vc	pm	22	8	0	0	0	d	0.3						Sm;Sl					
MR-48	148	149	99	a	m	Pu,P	M	c	w	m	c	ps	6	3	0	0	0					2			Sm					
MR-48	149	150	99	a	m	Pu,P	M	c	w	m	c	g	8	2	0	0	0					1			Sm					
MR-48	150	151	98	a	m	Pu,P	M	c	w	m	c	g	7	2	0	0	0					3			Sm				t	f
MR-48	151	152	99	a	m	Pu,P,Gn	M	c	w	m	c	g	3	1	0	0	0					1			Sm				t	f
MR-48	152	153	98	a	m	Pu,P,Gn	M	c	s	f	c	g	3	1	0	0	0					1			Sm	Fl			t	f
MR-48	153	154	100	a	m	Pu,P	M	c	w	m	c	ps	20	3	0	0	0					1			Sm					
MR-48	154	155	100	a	m	Pu,P	M	c	w	m	c	g	31	3	0	0	0								Sm					
MR-48	155	156	99	a	m	Pu,P	M,Sr	c	w	m	c	ps	14	8	0	0	0								Sm					
MR-48	156	157	99	a	m	Pu,P	M,Sr	c	w	m	c	ps	9	4	0	0	0					2			Sm					
MR-48	157	158	97	a	m	Pu,P	M,Sr	c	w	c	vc	pm	36	8	0	0	0					1			Sm					
MR-48	158	159	99	a	m	Pu,P,Gn	M	c	m	f	c	g	5	2	0	0	0					2			Sm					
MR-48	159	160	100	a	m	M,P	M	c	w	m	c	g	5	2	0	0	0								Sm					
MR-48	160	161	99	a	m	Pu,P,Gn	M,B	c	w	c	vc	ps	15	3	1	0	0								Sm		Mh			
MR-48	161	162	99	a	m	Pu,P,Gn	M	c	s	m	c	pm	10	5	0	0	0					2			Sm				t	f
MR-48	162	163	99	a	m	M,P,Gn	M	c	m	c	vc	pm	30	9	0	0	0					4			Sm				t	f
MR-48	163	164	100	a	m	M,P	M	c	m	m	c	pl	44	9	0	0	0					3			Sm				t	f
MR-48	164	165	100	a	m	Pu,P,Gn	M,B	c	w	c	vc	pl	50	14	0	0	0					2						Pm		
MR-48	165	166	98	a	m	Pu,P	M	c	w	m	c	pm	14	5	0	0	0					2			Sm				t	f
MR-48	166	167	74	a	m	Pu,M	M	c	w	c	c	pl	43	6	0	0	0								Sm					
MR-48	167	168	98	a	m	Pu,P	M,Lr	c	w	s	c	pl	66	6	0	16	0	w	0.8			4			Sl		Mh			
MR-48	168	169	98	a	m	Pu,P	M	c	w	m	c	pm	11	29	0	0	26	g	0.2					Gl	Sm					
MR-48	169	170	100	a	d	Pu	M	c	w	m	c	ps	12	3	0	0	0					1			Sm					
MR-48	170	171	100	a	m	Pu,P	M,Lr	c	w	m	c	pl	23	15	0	0	0								Sm			Pm		
MR-48	171	172	99	a	m	M,P,Gn	M,B	c	w	m	c	ps	10	5	0	1	0								Sm			Pm		
MR-48	172	173	100	a	d	Pu,M	B	c	w	s	c	ps	9	2	0	9	0					1			Sm		Mh			
MR-48	173	174	99	a	m	M,P	Lr,B	c	w	s	c	ps	7	2	0	30	0					2			Sm		Mh			
MR-48	174	175	98	a	m	Pu,P	Lr,M	c	w	m	c	ps	11	6	0	0	6					4		Gh	Sm				t	f
MR-48	175	176	99	a	m	M,P	M	c	w	m	c	ps	280	30	0	0	0					2			Sm			Phc		
MR-48	176	177	98	a	d	M,P	M	c	w	f	c	pm	56	4	0	0	0					3			Sm			Ph		
MR-48	177	178	99	a	m	Pu,P	M	c	w	m	c	ps	10	10	0	0	6					2		Gh;G1	Sm			Ph		
MR-48	178	179	90	a	m	Pu,P	M	c	w	m	c	pm	18	6	0	0	5							Gh	Sm					
MR-48	179	180	100	a	d	M	U	c	w	m	c	ps	10	2	0	0	0								Sm					
MR-48	180	181	100	a	d	M	M	c	w	m	c	ps	12	3	0	0	0								Sm					
MR-48	181	182	100	a	m	Pu,P	M	c	w	c	vc	pm	24	12	0	0	0								Sm			Pm		
MR-48	182	183	98	a	p	C,Pu	Lr,M	c	w	c	vc	pm	17	22	0	0	0								Sm			Pm		
MR-48	183	184	100	a	m	P,Pu	M,B	c	w	m	c	ps	38	5	0	0	0					1			Sm					
MR-48	184	185	100	a	m	Pu,C	M	c	w	m	c	ps	45	8	0	0	0								Sm					
MR-48	185	186	100	a	m	Pu,C	M	c	w	m	c	pv	62	25	0	0	22					1		Gh	Sm					
MR-48	186	187	99	a	p	C,Pu,Gn	B	c	w	m	c	ps	12	6	0	0	0								Sm					
MR-48	187	188	100	a	m	Pu,P	M	c	w	m	c	pl	36	6	0	0	0								Sm				t	f
MR-48	188	189	100	a	m	Pu,P	B	c	w	c	vc	pv	65	25	0	0	4							Gh	Sm			Ph	t	f
MR-48	189	190	20	a	m	Pu,P	M	c	w	c	vc	pm	16	2	0	0	0								Sm				t	f
MR-50	46	47	98	t	m	P	U	c	m	f	m	c	1	0	0	0	0	n			n	0	s2		Sr				n	n
MR-50	47	48	85	tm	d	Bk;P	B	c	m	m	c	vc	3	1	0	0	0	n			n	0			Sr				p	i
MR-50	48	49	98	t	d	Bk;P	B	c	m	f	c	vc	3	1	0	0	0	n			n	0	s2		Sr				p	i
MR-50	49	50	82	t	p	P	U	c	m	f	m	c	5	1	0	0	0	n		Bk	d	0	c		Sr;S?				n	n
MR-50	50	51	98	t	p	P	Lr	c	m	f	m	c	3	0.5	0	0	0	n		Bk	d	2	n		Sr				n	n

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-48	131	132	0.5								
MR-48	132	133	0.5								v.c. grains. Clay drapes
MR-48	133	134	1								Clay drapes
MR-48	134	135	0.5								
MR-48	135	136									Hard to tell bedding
MR-48	136	137									Clay drapes
MR-48	137	138	0.5								Clay drapes separates bedding
MR-48	138	139	1								
MR-48	139	140									
MR-48	140	141	0.5								
MR-48	141	142	0.5								
MR-48	142	143	0.5								
MR-48	143	144	1								See granule beds
MR-48	144	145	0.5								
MR-48	145	146	1	sc;fr	80;20	sc;qd	30				MF/FP contact at 145.2m, sharp contact. MF x-bedding/med. gr., FP massive/c. gr./poorly sorted
MR-48	146	147		fd	20	y	2	b	y	2	
MR-48	147	148									1st red intraclast
MR-48	148	149		fr	15	qd					
MR-48	149	150		fr	20	y					
MR-48	150	151	0.5								
MR-48	151	152	0.5								
MR-48	152	153	0.5								Fine grained silicified zone-keeps original texture
MR-48	153	154									Possible green stylolites
MR-48	154	155									Possible bleaching along stylolites
MR-48	155	156		fr	20	y					
MR-48	156	157		fr	15	y					
MR-48	157	158									Disseminated pebbles
MR-48	158	159		ft	10	y					30cm of silicified f. gr. core surrounding fracture
MR-48	159	160									
MR-48	160	161									Cream mud beds
MR-48	161	162	0.5	ft	10	qd	2				Very silicified in parts, poss.? stylolites
MR-48	162	163	0.5	ft,fr	5;30	qd,y	1				Green zone more silicified-along a fracture
MR-48	163	164	1	fr,fr	20;40	y,y					
MR-48	164	165		ft	45	qc	2				Stylolites
MR-48	165	166	0.5								
MR-48	166	167									
MR-48	167	168		ft,fr	25,40	y,qd					Clay in fault is green
MR-48	168	169		ft	27	y					
MR-48	169	170		ft	30	s					Poss. chlorite in fault
MR-48	170	171									
MR-48	171	172									
MR-48	172	173		fr	30	py					
MR-48	173	174		ft,ft	10,15	o,y					
MR-48	174	175	0.5	ft,ft	15,10	y,y					Clay in faults look green-associated with chlorite
MR-48	175	176		fr	15	y					Large quartz cobble (280mm) sits at the top of a coarsening upwards pebble sequence (2cm)
MR-48	176	177		ft	10	o					Chlorite in faults
MR-48	177	178									
MR-48	178	179									Stylolites?
MR-48	179	180									
MR-48	180	181									
MR-48	181	182									
MR-48	182	183									Stylolites
MR-48	183	184		ft	30	y					Styl
MR-48	184	185									Styl
MR-48	185	186									
MR-48	186	187									
MR-48	187	188	0.5								
MR-48	188	189	0.5								Styl
MR-48	189	190	0.5								FP/basement contact at 189.2m, sharp contact, some small pebbles at base
MR-50	46	47	0								top is some lose pebbles, probably part of overburden
MR-50	47	48	72								
MR-50	48	49	65								pyrob. stays in coarser grained beds
MR-50	49	50	0								
MR-50	50	51	0								

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Darkness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intract. Type	Intract. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydrocarbon Type	Hydrocarbon Distrib.
MR-50	51	52	98	tm	p	P	Lr	c	m	f	m	c	3	1	0	0	0	n		Bk	d	0	n		Sr				p	i
MR-50	52	53	95	t	p	P	Lr	c	m	f	m	c	3	2	0	0	0	n		Bk	d	1	n		Sr				p	i
MR-50	53	54	95	t	p	P	Lr	c	m	f	m	c	8	2	0	0	0	n		Bk	d	1			Sr				n	n
MR-50	54	55	98	t	p	P	Lr	c	m	f	m	c	6	2	0	0	0	n		Bk	d	3	s		Sr				p	f
MR-50	55	56	93	t	p	C	Lr	c	m	f	m	vc	7	2	0	0	0	n		Bk	d	3	n		Sr				p	f
MR-50	56	57	98	tm	p	C	Lr	c	m	f	m	c	3	1	0	0	0	n		Bk	d	0	n		Sr				n	n
MR-50	57	58	98	tm	p	C	Lr	c	m	f	m	c	7	2	0	0	0	n		Bk	d	4	n		Sr				p	f
MR-50	58	59	98	tm	p	C	Lr	c	m	f	m	vc	7	2	0	0	0	n		Bk	d	3	n		Sr				n	n
MR-50	59	60	98	t	p	C	Lr	c	m	f	f	vc	3	1	0	0	0	n		Bk	d	0	n		Sr				p	i
MR-50	60	61	98	tm	p	P	Lr	c	m	f	f	c	5	1	0	0	0	n		Bk	d	0	n		Sr	Fr			n	n
MR-50	61	62	93	tm	p	P	Lr	c	m	f	m	c	5	3	0	0	0	w	0.5	Bk	d	2	n		Sr				n	n
MR-50	62	63	98	mt	p	P	Lr	c	m	f	m	g	17	9	0	0	0	n		Bk	d	3	c	Gr	Sr				n	n
MR-50	63	64	98	mt	p	C	Lr	c	m	m	m	vc	7	6	0	0	0	n		Bk	d	0	n		Sr				p	i
MR-50	64	65	98	mt	p	P	Lr	c	m	m	c	vc	5	5	0	0	0	n		Bk	d	4	n		Sr				p	f
MR-50	65	66	97	mt	p	C	Lr	c	m	m	m	c	9	5	0	0	0	n			n	15	n		Sr				p	f
MR-50	66	67	98	tm	p	C	Lr	c	m	f	m	c	10	3	0	0	0	n			n	8	s2		Sr				p;p	i;f
MR-50	67	68	98	mt	p	P	Lr	c	m	f	m	c	10	2	0	0	0	n			n	13	n		Sr				p;p	i;f
MR-50	68	69	92	mt	m	P	Lr	c	m	m	c	vc	6	3	0	0	0	n			n	3	n		Sr				p;p	i;f
MR-50	69	70	90	mt	p	P	Lr	c	m	m	c	vc	6	3	0	0	0	n			n	5	n		Sr				p;p	i;f
MR-50	70	71	97	mt	m	P;M	Lr	c	m	m	c	g	7	8	0	0	0	n			n	7	c		S?;Sr				p;p	i;f
MR-50	71	71.42	98	mt	m	P;M	Lr	c	m	m	c	vc	24	10	0	0	0	w	1		n	2	n	Gr	Sr				p	i
MR-50	71.41	72	98	mt	p	C	Lr	c	m	f	m	c	7	1	0	0	0	n			n	7	ch;s2		Sr				p	f
MR-50	72	73	90	mt	p	C	Lr	c	m	f	m	c	5	1	0	0	0	n			n	10	sl		Sr	Fm			p	f
MR-50	73	74	98	tm	p	P	Lr	c	m	f	f	vf	11	2	0	0	0	n			n	20	n		Sr	Fm			p	f
MR-50	74	75	98	tm	p	C	Lr	c	m	f	f	c	2	0	0	0	0	g	0.5		n	12	n		Sm	Fr			p	f
MR-50	75	76	98	m	p	C	U	c	m	f	f	m	1	0	0	0	0	d	0.5		n	16	n			Fr			p	f
MR-50	76	77	98	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	p	0.5		n	10	n		Sr				p	f
MR-50	77	78	98	mt	p	C	Lr	c	m	f	f	c	1	0	0	0	0	d	0.5		n	9	n			Fr			p	f
MR-50	78	79	98	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	d	0.5		n	10	n		Sr				p	f
MR-50	79	80	98	mt	p	P	Lr;Sr	c	m	f	f	c	1	0	0	0	0	n			n	9	n			Fr			p	f
MR-50	80	81	98	tm	p	C	Lr	c	m	f	f	m	1	0	0	0	0	n			n	10	n			Fr			p	f
MR-50	81	82	98	mt	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	6	n		Sr				p	f
MR-50	82	83	98	tm	p	P	Lr;Sr	c	m	f	f	c	1	0	0	0	0	g	0.5		n	7	n		Sr	Fr			p	f
MR-50	83	84	98	tm	p	P	Lr	c	m	f	m	c	1	0	0	0	0	g	0.5		n	25	n		Sr				p	f
MR-50	84	85	97	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	d	0.5		n	16	n		Sr				p	f
MR-50	85	86	98	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	g	0.5	Bn	d	6	n		Sr				p	f
MR-50	86	87	98	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n		Bn	d	15	n		Sr				n	n
MR-50	87	88	98	mt	p	P	Lr	c	m	f	m	c	1	0	0	0	0	n			n	5	n		Sr				p	f
MR-50	88	89	98	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	p	0.5		n	10	n		Sr	Fm			p	f
MR-50	89	90	98	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	p	0.5		n	15	n		Sr				p	f
MR-50	90	91	98	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	p	0.5		n	4	n		Sr				n	n
MR-50	91	92	98	tm	p	C	Lr	c	m	f	f	c	1	0	0	0	0	g	0.5		n	10	n		Sl				n	n
MR-50	92	93	98	tm	p	C	Lr	c	m	f	m	m	1	0	0	0	0	p	0.5	Bn	d	4	n		Sr				n	n
MR-50	93	94	98	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n		Bn	d	6	n		Sr				n	n
MR-50	94	95	98	tm	p	C	Lr	c	m	f	m	c	1	0	5	0	0	g	0.5	Bn	d	5	n		Sr				n	n
MR-50	95	96	98	tm	p	C	U	c	m	f	m	c	1	0	0	0	0	w	0.5	Bn	d	8	n		Sr				n	n
MR-50	96	97	98	mt	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n		Bn	d	7	n		Sr				n	n
MR-50	97	98	98	tm	p	C	U	c	m	f	m	c	1	0	0	0	0	n		Bn	d	5	n		Sr				n	n
MR-50	98	99	98	tm	p	C	U	c	m	f	m	m	1	0	0	0	0	g	0.5		n	7	n		Sl				n	n
MR-50	99	100	98	tm	p	C	U	c	m	f	m	c	1	0	0	0	0	g	0.5		n	6	n		Sr				n	n
MR-50	100	101	97	tm	p	C	U	c	m	f	f	c	1	0	0	0	0	n			n	8	n		Sr				n	n
MR-50	101	102	98	t	p	C	U	c	m	f	m	c	1	0	0	0	0	d	0.5		n	6	n		Sr				n	n
MR-50	102	103	98	tm	p	C	U	e	m	f	m	m	1	0	0	0	0	n			n	8	n		Sr				n	n
MR-50	103	104	80	t	p	C	U	e	m	f	m	m	1	0	0	0	0	n			n	30	n		Sm;S?				n	n
MR-50	104	105	97	tm	p	C	U	e	m	f	m	m	1	0	0	0	0	n			n	30	n		Sm;S?				p	f
MR-50	105	106	97	tm	p	C	Lr	e	m	f	m	m	1	0	0	0	0	n			n	20	n		Sr				p	f
MR-50	106	107	93	tm	p	C	U	e	m	f	m	c	1	0	0	0	0	n			n	30	n		S?				n	n
MR-50	107	108	97	tm	p	C	U	e	w	f	m	m	1	0	0	0	0	n			n	30	n		S?				n	n
MR-50	108	109	98	mt	p	C	U	e	w	f	m	m	1	0	0	0	0	n		Bk	d	20	n		Sr;S?				n	n
MR-50	109	110	90	tm	p	P	U	e	w	f	m	c	1	0	0	0	0	n			n	30	n		Sr;S?				n	n
MR-50	110	111	98	tm	p	C	Lr	e	w	f	m	c	1	0	0	0	0	n			n	20	n		Sr				n	n
MR-50	111	112	98	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	20	n		Sr				n	n
MR-50	112	113	98	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	20	n		Sr				n	n
MR-50	113	114	98	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	w	1		n	15	n		Sr				n	n

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct.FF Cement	Tec. Struct.FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-50	51	52	2								
MR-50	52	53	10	fr	40	s	0				
MR-50	53	54	0	ft	20	qo	0				
MR-50	54	55	1	fr	20	py	0				
MR-50	55	56	1	fr	20;0	su,py	3;0				
MR-50	56	57	0								
MR-50	57	58	1	fd;fr	20;30	s;p	0;0				
MR-50	58	59	0	fr;fr	70;30	y;y	0;0				
MR-50	59	60	1								
MR-50	60	61	0								pyrite dominant throughout
MR-50	61	62	0	fr	40	s	0				
MR-50	62	63	0	fr	50	s	0				
MR-50	63	64	1								
MR-50	64	65	1	fr	35	qo	0				
MR-50	65	66	1	fd;fr;fr	10;20;30	qd;py;s	0;0;0				
MR-50	66	67	3	fr	10	py	0				
MR-50	67	68	4	ft	10	y	0				
MR-50	68	69	2								
MR-50	69	70	4	fr	30	s	0				
MR-50	70	71	3	ft	5	qo	0				
MR-50	71	71.42	2	ft	10		0				base is LzL/MF contact, large pebble lag at base, sharp base, soft sed deformation and faulting at contact, gradual over 71.4m to 71.8m
MR-50	71.41	72	1	ft	30		0				faults bring LzL into MF
MR-50	72	73	1	ft	40	sc	0				soft sed. fault zone? bringing LzL in MF or sandy gouge
MR-50	73	74	2	ft;fr	15;10	sc;py	30;0				silicified brecciated fault zone
MR-50	74	75	2	ft;fr	30;10	sc;py	15;0				silicified brecciated fault zone
MR-50	75	76	1	ft;fr	20;15	sc;py	0;0				silicified brecciated fault zone
MR-50	76	77	1	ft	10	y	5				
MR-50	77	78	1	fd	15	qd	0				
MR-50	78	79	1	ft;fr	5;20	sc;qo	5;0				
MR-50	79	80	1	fr	10	y	0				
MR-50	80	81	1	fa;ft	25;10	sc;y	10;4				silicified brecciated fault zone, ca n see slickensides
MR-50	81	82	1								
MR-50	82	83	1	fr	10	qd	0				
MR-50	83	84	1	ft	10	sc	0				silicified brecciated fault zone
MR-50	84	85	1	fr	10	s	2				a large siderite? filled fracture
MR-50	85	86	1								
MR-50	86	87	0	ft	0	qo	0				silicified faulted/fractured zone
MR-50	87	88	1	ft	5		0				
MR-50	88	89	1	fr	20	qo	0				
MR-50	89	90	1	ft;fr	20;70	y;qd;p	0;0				fractured zone, silicified and clay rich
MR-50	90	91	0								
MR-50	91	92	0	fd;fr	10;15	y;qd	2;0				
MR-50	92	93	0	fr	30	py	0				
MR-50	93	94	0	fr	20	s	2				
MR-50	94	95	0	ft;fr	15;20	y;s?	5;2				abundant brown mineral disseminated along bedding
MR-50	95	96	0	fr	30	y	0				abundant brown mineral disseminated along bedding
MR-50	96	97	0								abundant brown mineral disseminated along bedding
MR-50	97	98	0								
MR-50	98	99	0	ft	15	y	0				
MR-50	99	100	0	fr	30	qd	0				
MR-50	100	101	0	fr	10	qd	0				
MR-50	101	102	0	fr	50;0	qd,py	0;0				
MR-50	102	103	0								has friable section of ss
MR-50	103	104	0								highly fractured and broken core, some friable ss.
MR-50	104	105	1								highly fractured and broken core, some friable ss.
MR-50	105	106	1	fr	30	qd	0				
MR-50	106	107	0	fs	0		0				highly fractured and broken core, some friable ss., silicified brecciated fault zone
MR-50	107	108	0								highly fractured and broken core, some friable ss
MR-50	108	109	0								highly fractured and broken core, some friable ss.
MR-50	109	110	0								highly fractured and broken core, some friable ss
MR-50	110	111	0								highly fractured and broken core, some friable ss
MR-50	111	112	0								
MR-50	112	113	0	fr	25	qd	0				
MR-50	113	114	0								

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-50	114	115	98	tm	p	C	U	c	m	f	m	c	1	0	0	0	0	n			n	12	n		Sr				n	n
MR-50	115	116	98	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	8	n		Sr				n	n
MR-50	116	117	98	t	p	C	U	e	m	f	m	c	1	0	0	0	0	n		Bk	d	16	n		Sr				n	n
MR-50	117	118	97	mt	p	C	U	e	m	f	m	c	1	0	0	0	0	n			n	20	n		Sr				n	n
MR-50	118	119	98	tm	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	10	n		Sr				n	n
MR-50	119	120	98	t	p	C	U	c	m	f	m	c	1	0	0	0	0	n		Bk	d	25	n		Sr				n	n
MR-50	120	121	98	t	p	C	Lr	c	m	f	m	c	1	0	0	0	0	n			n	20	n		S?;Sm;Sr				n	n
MR-50	121	122	94	t	p	C	Lr	e	m	f	m	c	1	0	0	0	0	n			n	25	n		Sr				n	n
MR-50	122	123	97	mt	p	C	U	c	m	f	m	c	1	0	0	0	0	n		Bk	d	25	n		Sr;Sm				n	n
MR-50	123	124	96	mt	p	C	U	e	m	f	m	c	1	0	0	0	0	n			n	25	n		Sr;S?				n	n
MR-50	124	125	84	t	p	C	U	e	m	f	m	c	1	0	0	0	0	n			n	15	n		Sr;Sm				n	n
MR-50	125	126	98	tm	p	C	U	c	m	f	m	c	1	0	0	0	0	n			n	20	n		Sr				n	n
MR-50	126	127	98	mt	p	C	U	c	m	f	m	c	1	0	0	0	0	n			n	17	n		Sr				n	n
MR-50	127	128	98	mt	p	C	U	c	m	f	m	c	1	0	0	0	0	n			n	17	n		Sr				n	n
MR-50	128	129	98	t	p	C	U	c	w	f	m	m	1	0	0	0	0	p	0.2			7			Sx				t	f
MR-50	129	130	97	t	p	C	U	c	w	f	m	m	1	0	0	0	0	g	0.2			9			Sr				t	f
MR-50	130	131	50	t	p	C	U	f	n	f	m	m	1	0	0	0	0					30			S?				t	f
MR-50	131	132	97	t	p	C	U	f	n	f	m	m	1	0	0	0	0					30			S?					
MR-50	132	133	97	t	p	C	U	e	n	f	m	m	1	0	0	0	0					20			Sx					
MR-50	133	134	97	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.5			10			Sr;Sm					
MR-50	134	135	99	t	p	C	Lr	e	w	f	m	m	1	0	0	0	0					12			Sr				t	f
MR-50	135	136	98	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.1			13			St					
MR-50	136	137	98	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					13			Sr				t	f
MR-50	137	138	98	t	p	C	Lr	e	m	f	m	m	1	0	0	0	0					30			S?				t	f
MR-50	138	139	98	tm	p	C	U	c	w	f	m	m	1	0	0	0	0					20			S?				t	f
MR-50	139	140	98	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					20			Sr				t	f
MR-50	140	141	98	t	p	C	U	e	w	f	m	m	1	0	0	0	0					20			Sr				t	f
MR-50	141	142	98	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					20			Sx				t	f
MR-50	142	143	98	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					20			Sx				t	f
MR-50	143	144	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					20			Sr;Sm				t	f
MR-50	144	145	98	t	p	C	Lr	c	m	f	m	m	1	0	0	0	0			Bk	d	15			Sr				t	f
MR-50	145	146	98	t	p	C	Lr	c	m	f	m	m	1	0	0	0	0					15			S?				t	f
MR-50	146	147	97	tm	p	P	Lr	c	w	f	m	m	1	0	0	0	0					20			S?				t	f
MR-50	147	148	98	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	g	0.2			12			Sm				t	f
MR-50	148	149	90	t	p	P	Lr	e	w	f	m	m	1	0	0	0	0					30			Sm				t	f
MR-50	149	150	96	t	p	C	Lr	e	w	f	m	m	1	0	0	0	0					20			Sx				t	f
MR-50	150	151	95	t	p	P	U	e	w	f	m	m	1	0	0	0	0	p	0.2			30			Sr					
MR-50	151	152	98	t	p	C	Lr	e	w	f	m	m	1	0	0	0	0					30			Sr				t	f
MR-50	152	153	97	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.3			20			Sm				t	f
MR-50	153	154	98	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0					8			Sr				t	f
MR-50	154	155	98	t	p	P	Lr	c	m	f	m	m	1	0	0	0	0					20			Sr;Sm				t	f
MR-50	155	156	98	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0					30			Sr				t	f
MR-50	156	157	97	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.4			20			Sr				t	f
MR-50	157	158	98	tm	p	P	Lr	c	m	f	m	m	1	0	0	0	0					20			Sr				t	f
MR-50	158	159	98	tm	p	P	Lr	c	w	f	m	m	1	0	0	0	0					15			Sr				t	f
MR-50	159	160	97	tm	p	P	Lr	c	w	f	m	c	1	0	0	0	0					20			Sx				t	f
MR-50	160	161	96	t	p	C	Lr	f	w	f	m	c	1	0	0	0	0	d	0.4			20			Sr				t	f
MR-50	161	162	97	t	p	C	Lr	f	n	f	m	c	1	0	0	0	0					30			S?				t	f
MR-50	162	163	98	t	p	C	Lr	c	m	f	m	m	1	0	0	0	0	p	0.2			15			Sx				t	f
MR-50	163	164	98	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2			20			Sr				t	f
MR-50	164	165	96	t	p	C	Lr	c	m	f	m	m	1	0	0	0	0	d	0.2			30			Sr				t	f
MR-50	165	166	95	tm	p	C	U	f	n	f	m	m	1	0	0	0	0					30			S?				ct	cf
MR-50	166	167	90	tm	p	C	U	f	n	f	m	m	1	0	0	0	0					30			S?				t	f
MR-50	167	168	97	t	p	C	U	c	w	f	m	c	1	0	0	0	0	d	0.3			30			Sr				t	f
MR-50	168	169	98	tm	p	P	Lr	c	w	vf	m	c	2	0	0	0	0					20			Sr	Fh			t	f
MR-50	169	170	98	t	p	C,Y	Lr	f	w	f	m	c	3	0	0	0	0					30			Sr				t	f
MR-50	170	171	97	tm	p	C	U	e	w	f	m	m	1	0	0	0	0					30			Sr				t	f
MR-50	171	172	98	t	p	C	Lr	f	w	f	m	c	1	0	0	0	0					40			S?				t	f
MR-50	172	173	97	t	p	C	Lr	e	w	f	m	c	1	0	0	0	0					30			Sx				t	f
MR-50	173	174	97	t	p	C	Lr	c	w	f	m	c	1	0	0	0	0					20			St;Sr				t	f
MR-50	174	175	97	t	p	P	Lr	e	w	f	m	c	2	0	0	0	0					20			Sl				t	f
MR-50	175	176	97	t	p	C	Lr	e	w	f	m	c	1	0	0	0	0					30			S?				t	f
MR-50	176	177	97	t	p	C	U	v	n	f	m	c	1	0	0	0	0					40			S?				t	f
MR-50	177	178	97	tm	p	P	U	f	w	f	m	c	1	0	0	0	0					30			S?				t	f

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct.FF Cement	Tec. Struct.FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-50	114	115	0								
MR-50	115	116	0	fr	10	py	0				
MR-50	116	117	0	fr	70	qd	0				most fractures filled with drusy quartz and some pyrite
MR-50	117	118	0	fd	5	y	0				part core broken and friable, most fractures filled with drusy quartz
MR-50	118	119	0	fr	45,0	qd,py	0,0				most fractures filled with drusy quartz, and some with pyrite
MR-50	119	120	0	fr	45,0	qd,py	0,0				most fractures filled with drusy quartz, and some with pyrite, highly fract
MR-50	120	121	0	fd	25		0				highly fractured/brecciated zone, most fractures filled with drusy quartz, and some with pyrite
MR-50	121	122	0	ft	5	y	0				highly fractured and broken core, some fractures filled with drusy quartz and pyrite
MR-50	122	123	0	fr,fr	40,20	qd,py	0,0				highly fractured and broken core, some fractures filled with drusy quartz and pyrite
MR-50	123	124	0	fr	40	s	0	fo	y	2	highly fractured and broken core, some fractures filled with drusy quartz and pyrite
MR-50	124	125	0	ft	5	y	0				fractures more filled with clay rather than drusy quartz
MR-50	125	126	0	fr	20,0	qd,py	0,0				highly fractured, filled with drusy quartz and pyrite
MR-50	126	127	0								
MR-50	127	128	0								
MR-50	128	129	0.5	fr	40	qd					Bleached out stylolites?
MR-50	129	130	0.5	fr	15	qo					fractures silicified
MR-50	130	131	0.5	fa	30	y					Completely broken core
MR-50	131	132		ft	20	y	3				Highly fractured and broken
MR-50	132	133									Highly fractured and broken
MR-50	133	134		fr	20	qo	6				
MR-50	134	135	0.5								
MR-50	135	136		br,fr	10,20	su,qd	5				Brecciated zone
MR-50	136	137	0.5								Silicified fractures
MR-50	137	138	0.5	bx	10	qo	5				Highly fractured, top broken, bottom silicified
MR-50	138	139	1	bx	10	qo	3				Silicified fractures
MR-50	139	140	1	ft	20	y	2				
MR-50	140	141	2	bx,fr	10,20	qo,y	3				fractures filled with clay and tar
MR-50	141	142	2	bx	10	qo	2				
MR-50	142	143	1	fr,fr	40,30	qd,y	1				
MR-50	143	144	2	bx,fr	10,10	qo,y	4				
MR-50	144	145	1								Silicified
MR-50	145	146	1	bx	10	qo					
MR-50	146	147	2	bx,fr	10,40	qo,py	4				
MR-50	147	148	1	ft	30	y	3				Possible brecciated zone and silicified
MR-50	148	149	1								Highly fractured and broken
MR-50	149	150	1								
MR-50	150	151									
MR-50	151	152	3								Broken core
MR-50	152	153	2	ft	5	y	4				Broken core
MR-50	153	154	1	ft,ft	20,40	y,y	2,4				
MR-50	154	155	1	bx		ac	80				Broken core
MR-50	155	156	2	fd,ft	20,40	su,y	3,12				
MR-50	156	157	2	ft	40	y	2				Clay drapes
MR-50	157	158	2	bx,bx		qo,qo	30,90				Clay within brecciated zone
MR-50	158	159	2	bx,ft	20	ac,y	2				
MR-50	159	160	2								Broken core
MR-50	160	161	2	ft	20	su	10				Broken core and friable
MR-50	161	162	1	br		su					Completely friable and broken
MR-50	162	163	1								
MR-50	163	164	2	ft,fd	20,15	su,y	20,1				
MR-50	164	165	5	bx	20	qo	160				
MR-50	165	166	3								Friable broken core
MR-50	166	167	10								Broken and friable core
MR-50	167	168	4								
MR-50	168	169	3	fd	20	y	1				Some broken core
MR-50	169	170	5								
MR-50	170	171	10	br		su					Highly fractured and broken
MR-50	171	172	40	ft	10	su	4				Highly fractured
MR-50	172	173	5								
MR-50	173	174	3								
MR-50	174	175	4								Broken core
MR-50	175	176	40								Highly fractured and broken core
MR-50	176	177	40								Highly fractured and friable
MR-50	177	178	10								Highly fractured and broken

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSSG Grain Size	PSSS Grain Size	PSSF Grain Size	PSSM Grain Size	PSSP Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-50	178	179	97	t	p	P	U	e	w	f	m	c	2	0	0	0	0					30			Sm				t	f
MR-50	179	180	97	t	p	C	Lr	c	w	f	m	c	2	0	0	0	0					30			Sr				t	f
MR-50	180	181	97	t	p	C	Lr	c	w	f	m	c	2	0	0	0	0					30			Sr				t	f
MR-50	181	182	98	t	p	C	Lr	e	w	f	m	c	2	0	0	0	0	w	0.8			15			Sx				t	f
MR-50	182	183	98	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0					15			Sx				t	f
MR-50	183	184	98	t	p	C	Lr	c	m	f	m	c	2	0	0	0	0					15			Sm;Sl				t	f
MR-50	184	185	99	tm	p	P	Lr	c	w	f	m	c	2	0	0	0	0					12			Sr				t	f
MR-50	185	186	98	t	p	C	Lr	c	w	f	m	c	2	0	0	0	0	p	0.2			15			Sr				t	f
MR-50	186	187	99	t	p	C	U	c	w	f	m	c	2	0	0	0	0					12			Sr				t	f
MR-50	187	188	99	tm	p	C	Lr	c	w	f	m	c	3	1	0	0	0					9			Sr				t	f
MR-50	188	189	100	t	p	C	Lr	c	w	f	m	c	4	1	0	0	0					10			Sr				t	f
MR-50	189	190	99	tm	p	C	Lr	c	w	f	m	g	5	3	0	0	0	w	0.5	Bn	l	5			Sr				t	f
MR-50	190	191	98	tm	p	C	Lr	c	w	f	m	g	8	6	0	0	0	g	0.2	Bn	l	4			Sr				t	f
MR-50	191	192	99	tm	p	C	Lr	c	w	f	m	c	5	1	1	0	0	p	0.5	Bn	l	14			Sr				t	f
MR-50	192	193	99	tm	p	P	Lr	c	w	f	m	c	2	0	1	0	0					5			Sx;Sl				t	f
MR-50	193	194	97	tm	p	P	Lr	c	w	f	m	c	2	0	0	0	0					20			Sl				t	f
MR-50	194	195	99	ml	p	P	Lr	c	w	f	m	c	3	1	0	0	0					20			Sl				t	f
MR-50	195	196	97	tm	p	C	U	c	w	f	m	c	3	1	0	0	0					20			Sl				t	f
MR-50	196	197	99	tm	p	C	U	c	w	f	m	m	1	0	0	0	0	g	0.3			15			Sl				t	f
MR-50	197	198	99	tm	p	C	U	c	w	f	m	m	1	0	0	0	0					12			Sl				t	f
MR-50	198	199	100	tm	p	C	U	c	w	f	m	m	4	1	0	0	0			Bk	l	10			Sl				t	f
MR-50	199	200	80	tm	p	C	U	c	w	f	m	c	5	1	0	0	0					6			Sl				t	f
MR-50	200	201	70	tm	p	C,Gn	U	c	w	f	m	m	1	0	0	0	0					12			Sl					
MR-50	201	202	85	a	m	Pu,P,Gn	M	c	w	m	c	c	2	0	0	0	0					4			Sm					
MR-50	202	203	95	a	d	Pu,C	M	c	w	s	c	vc	5	0	0	5	0					2			Sm		Mh			
MR-50	203	204	99	a	m	Pu,P	M	c	w	m	c	vc	13	1	0	0	0					2			Sm					
MR-50	204	205	99	a	d	M,Gn	B	c	w	y	c	vc	5	1	11	0	0					1			Sm		Mh			
MR-50	205	206	99	a	m	M,C	M	c	w	m	c	vc	7	2	0	0	0	d	0.4			2			Sm					
MR-50	206	207	99	a	p	C,Pu	B	c	w	m	c	g	23	5	0	0	0					2			Sm					
MR-50	207	208	100	a	p	C,Pu	B	c	w	m	c	pm	45	10	0	0	0					1			Sm					
MR-50	208	209	94	a	p	C	U	c	w	m	c	g	10	3	0	0	0								Sm					
MR-50	209	210	95	a	p	Bn,P	B	c	w	m	c	g	10	2	0	0	0					3			Sm					
MR-50	210	211	95	a	p	P,Gn	Lr	c	w	m	c	g	9	3	0	0	0					1			Sm			Pl		
MR-50	211	212	85	a	p	C,P	B	c	w	m	c	pm	18	10	0	0	7					1			Sm			Ph		
MR-50	212	213	92	a	p	P,Gn	Lr	c	w	m	c	pm	28	8	0	0	0					2		G1	Sm					
MR-50	213	214	90	a	p	P,Gn	Lr	c	w	m	c	ps	9	8	0	0	0					2			Sm			Ph		
MR-50	214	215	94	a	p	P	Lr	c	w	m	c	ps	12	4	0	0	0					4			Sm					
MR-50	215	216	98	a	p	P,Bn	Lr	c	w	y	c	ps	22	12	4	0	0					2			Sm			Ph		
MR-50	216	217	98	a	p	Bn,P	B	c	w	y	c	g	15	4	2	0	0	w	0.6			3			Sm					
MR-50	217	218	98	a	m	P,M	B	c	w	m	c	pm	20	12	0	0	0							Gh	Sm					
MR-50	218	219	97	a	p	P,M	M	c	w	m	c	pm	23	15	0	0	0					5		G1	Sm			Ph		
MR-50	219	220	99	a	m	Pu,P	M	c	w	m	c	ps	23	6	1	0	3					3			Sm			Ph		
MR-50	220	221	95	a	m	Pu,P	M	c	w	m	c	ps	13	6	0	0	0								Sm			Ph		
MR-50	221	222	100	a	m	Pu,P	M	c	w	m	c	pm	23	6	0	0	0								Sm					
MR-50	222	223	99	a	m	Pu,P	M	c	w	c	vc	pm	33	28	0	0	25					1		Gi	Sm					
MR-50	223	224	99	a	m	Pu,P,Gn	M	c	w	m	c	pm	28	20	0	0	0					1			Sm			Ph		
MR-50	224	225	99	a	p	P,Pu,Gn	M	c	w	m	vc	pl	60	35	0	0	0								Sm			Pm		
MR-50	225	226	99	a	m	P,Pu	M	c	w	m	c	pm	20	9	0	0	0								Sm					
MR-50	226	227	99	a	m	P,Pu	M	c	w	m	c	ps	15	4	0	0	0													
MR-50	227	228	100	a	m	P,Gn,Pu	B	c	w	m	c	pm	13	3	0	0	0					2			Sm;Sh					
MR-50	228	229	100	a	m	P,Pu	M	c	w	m	c	pm	25	8	0	0	0					1			Sm			Pm		
MR-50	229	230	85	a	m	Pu,Gn,P	B	c	w	m	c	pm	50	7	0	0	0								Sm					
MR-50	230	231	99	a	m	P,Pu	M	c	w	m	c	pm	25	8	0	0	0								Sm			Ph		
MR-50	231	232	100	a	p	P,C	M	c	w	m	c	ps	8	8	0	0	0					2			Sm					
MR-50	232	233	97	a	p	C,Gn,P	M	c	w	m	c	ps	10	18	0	0	50					5		Gi	Sm					
MR-53	24	25	10	t	p	C	U	c	w	f	f	m	1	0	0	0	0									Fx				
MR-53	25	26	100	tm	p	C	Lr	c	w	f	f	m	2	0	0	0	0			Bn	d	2				Fm;Fx				
MR-53	26	27	97	tm	p	C,Pu	B	c	w	f	f	m	2	0	0	0	0					2				Fr;Fm				
MR-53	27	28	100	tm	p	P	U	c	w	f	f	m	7	1	0	0	0					1				Fr				
MR-53	28	29	85	t	p	C	U	c	w	f	f	m	7	1	0	0	0					7		G1		Fr			t	f
MR-53	29	30	99	tm	p	C	Lr	c	w	f	f	m	5	1	0	0	0			Bk	d	4				Fr				
MR-53	30	31	99	t	p	C	Lr	c	w	f	f	m	2	0	0	0	0			Bk	d	2				Fr				
MR-53	31	32	95	t	p	P	Lr	c	w	f	f	m	6	1	0	0	0			Bk	d	2				Fr			t	i
MR-53	32	33	100	t	p	C	Lr	c	w	f	m	m	7	1	0	0	0						s2		Sr				t	f

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-50	178	179	8	ft	50	y	50				
MR-50	179	180	15	ft	20	y	2				
MR-50	180	181	6	ft	20	y	2				
MR-50	181	182	4								Intro of more coarse material
MR-50	182	183	2	br	20	su	5				Clay drapes
MR-50	183	184	2								
MR-50	184	185	1	fd;fd	20;30	y;y	2;2				beginning of changing x-beds, some broken core, high angle beds
MR-50	185	186	2	ft	20	y	4				High angle beds
MR-50	186	187	1								Bedding seems at high angles
MR-50	187	188	2								
MR-50	188	189	1								
MR-50	189	190	0.5								
MR-50	190	191	1								
MR-50	191	192	1								Clay drapes
MR-50	192	193	0.5	fr	20	o					Mud in form of clay drapes, chlorite filled fracture?
MR-50	193	194	3	ft;fd;bx	40;10	y	10				
MR-50	194	195	2	ft;bx	30	y;sc	3				
MR-50	195	196	2	fd	20	sc	4				
MR-50	196	197	2	fd	10	y	3				
MR-50	197	198	2	ft	30	su	25				Possible brecciated zone
MR-50	198	199	1	ft;ft;fr	20;20;10	su;y;qd	4;1				
MR-50	199	200	1	fd	5	qo	2				
MR-50	200	201		ft;fd;fr	5;10;5	y;qo;qd	2;3				MF/FP contact at 200.67m, contact missing due to missing core, MF fine grained to contact, green colour probably chlorite
MR-50	201	202		ft	5	o		ms	y	8	Broken core, hard to tell alteration
MR-50	202	203						fo	y	8	
MR-50	203	204		fr	30	s	3				
MR-50	204	205						fo	y	2	Mud bed is green
MR-50	205	206									
MR-50	206	207		fr	40	qd	4				
MR-50	207	208									
MR-50	208	209									
MR-50	209	210		fr;fr	25;30	qd;qd	4;2	fi	y	13	Darker beds has many stylolites?
MR-50	210	211						fi	y	40	
MR-50	211	212						fi	y	28	Stylolites
MR-50	212	213		ft	20	y	15				Stylolites
MR-50	213	214		ft;ft	20;20	y;y	1;1	fo	y	4	Green replacement clay
MR-50	214	215		ft	20	y	1				Stylolites, broken core
MR-50	215	216						fo	y	1	Abundant red stylolites?, mud beds and drapes
MR-50	216	217		ft;fr	20;10	y;qd	1;1				Red pebble possible intraclast
MR-50	217	218									
MR-50	218	219		ft	20	y	1				
MR-50	219	220		ft	20	o					Mud drapes
MR-50	220	221									
MR-50	221	222									
MR-50	222	223		fr	20	y					matrix supported conglomerate, qtz dominated sub-angular to sub-rounded, 3-6mm sized grains
MR-50	223	224									
MR-50	224	225									
MR-50	225	226									
MR-50	226	227									Stylolites?
MR-50	227	228									Med. gr. bed (40cm) is green
MR-50	228	229									
MR-50	229	230									Med. gr. bed is green
MR-50	230	231									
MR-50	231	232									Spotted bleached patches
MR-50	232	233		fd	20	y	20	ms	y	90	FP/bsmt contact at 232.81m to 233.03m, there is a trough in the bsmt, at 232.1m and on the ss is bleached and replaced with clay with a greenish colour
MR-53	24	25									Hole starts at 24.9m
MR-53	25	26									
MR-53	26	27									
MR-53	27	28									
MR-53	28	29	0.5	fd	30	n	0				
MR-53	29	30		fd	10	py					
MR-53	30	31									
MR-53	31	32	6								
MR-53	32	33	22								

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-53	33	34	98	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0			Bk	d	5			Sr				t	f
MR-53	34	35	98	tm	m	P,Y	Lr	c	w	f	f	m	15	1	0	0	0			Bk	d	4			Sr	Fm			t	i
MR-53	35	36	98	tm	m	P	Lr,Sr	c	w	f	m	m	2	0	0	0	0			Bn	d	2			Sr					
MR-53	36	37	100	t	p	P	Lr,Sr	c	w	f	m	vc	10	3	0	0	0			Bk	d	1			Sr				t	i
MR-53	37	38	100	t	p	P	Lr	c	w	f	m	vc	10	3	0	0	0			Bn	d				Sr;Sl				t	i
MR-53	38	39	99	t	m	P	Lr	c	w	f	m	c	13	2	0	0	0					2			Sr;Sm				t	i
MR-53	39	40	100	t	m	P	Lr	c	w	f	m	m	8	1	0	0	0					1			Sr					
MR-53	40	41	92	t	m	P	Lr	c	w	f	m	vc	3	1	0	0	0								Sr	Fm				
MR-53	41	42	99	t	m	P	Lr	c	w	f	m	m	3	1	0	0	0			Bn	d	2			Sr;Sm				t	f
MR-53	42	43	99	mt	p	P	Lr	c	w	f	m	c	8	2	0	0	0			Bn	d	3			Sr;Sm				t;t	f;i
MR-53	43	44	85	t	p	P	Lr	c	s	f	m	c	7	1	0	0	0					3			Sr				t;t	f;f
MR-53	44	45	100	t	p	P	Lr	c	w	f	m	c	7	1	0	0	0					2			Sr	Fm				
MR-53	45	46	98	t	p	P	Lr	c	w	f	f	m	1	0	0	0	0	p	0.8			3			Sr	Fm				
MR-53	46	47	99	t	p	P	Lr	c	w	f	f	m	1	0	0	0	0	d	0.3	Bn	d	2				Fr;Fl				
MR-53	47	48	99	tm	p	P	Lr	c	w	f	f	m	1	0	0	0	0	g	0.5	Bn	d	2				Ft;Fr				
MR-53	48	49	99	t	m	P,Pu	B,Lr	c	w	f	f	m	1	0	0	0	0	w	2.5	Bn	d	2				Fm;Fx				
MR-53	49	50	97	tm	m	P,Pu	B,Lr	c	w	f	f	m	1	0	0	0	0	p	0.4			3				Ft;Fr			t	f
MR-53	50	51	100	tm	d	Pu,P	Ld	c	w	f	f	m	1	0	0	0	0	w	1.1			1				F?				
MR-53	51	52	99	t	m	P,Pu	B,Lr	c	w	f	f	m	1	0	0	0	0	g	1	Bn	d	4				Fx				
MR-53	52	53	100	t	m	P,Pu	Lr	c	w	f	f	m	1	0	0	0	0	g	1			2				Fr;Fm				
MR-53	53	54	100	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0	d	0.4	Bn	d	2				Fr				
MR-53	54	55	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.5	Bn	d	3			Sl					
MR-53	55	56	98	t	m	P	Lr	c	w	f	f	m	1	0	0	0	0	g	0.9			4				Fx;Fm				
MR-53	56	57	100	t	m	P	Lr	c	w	f	f	m	1	0	0	0	0	g	0.4	Bn	d	1				Fm;Fr				
MR-53	57	58	100	t	p	C	Lr,Sr	c	w	f	f	m	1	0	0	0	0	g	0.1			2				Fm;Fr				
MR-53	58	59	98	t	m	P	Lr	c	w	f	f	m	1	0	0	0	0	g	0.2	Bn	d	4				Fr;Fm				
MR-53	59	60	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.1	Bn	d	1			Sr;Sl					
MR-53	60	61	100	tm	m	P	Lr	c	w	f	m	m	1	0	0	0	0					2			Sr	Fm				
MR-53	61	62	92	t	m	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.5			2			Sr					
MR-53	62	63	99	t	m	C	Lr	c	w	f	f	m	1	0	0	0	0	g	0.9	Bn	d	3			Sr	Fm				
MR-53	63	64	99	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.4			1			Sr					
MR-53	64	65	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					2			Sr					
MR-53	65	66	100	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.3	Bn	d	3			Sr	Fm				
MR-53	66	67	100	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.4			2			Sr	Fm			t	i
MR-53	67	68	97	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0	p	0.1	Bn	l	2				Fr;Fl				
MR-53	68	69	100	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0	p	0.2	Bn	d	4			Sr	Fm				
MR-53	69	70	100	tm	m	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.3			10			Sr	Fm			t	f
MR-53	70	71	98	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.1			2			Sr					
MR-53	71	72	100	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.1			1			Sr	Fm				
MR-53	72	73	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0			Bn	d	2			Sr;Sl					
MR-53	73	74	85	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					1			Sr					
MR-53	74	75	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0					3			Sr	Fm				
MR-53	75	76	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.3			2			Sr					
MR-53	76	77	99	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					1			Sr					
MR-53	77	78	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.4	Bn	d	2			Sr					
MR-53	78	79	99	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	w	2.5			2			Sr;Sm					
MR-53	79	80	95	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					1			Sr					
MR-53	80	81	99	t	m	C	Lr	c	w	f	f	m	1	0	1	0	0	g	0.4			1				Fr;Fh				
MR-53	81	82	99	t	p	C	Lr	c	w	f	m	m	1	0	1	0	0	d	0.3			1			Sr;Sl					
MR-53	82	83	97	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.3	Bn	d	2			Sr;Sm					
MR-53	83	84	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.1			2			Sr;Sm					
MR-53	84	85	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0					1			Sr					
MR-53	85	86	96	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.3			1			Sr					
MR-53	86	87	100	t	m	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	p	0.3			2			Sr					
MR-53	87	88	100	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0	d	0.2			2			Sr;Sm				t	f
MR-53	88	89	94	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0					2			Sr;Sm					
MR-53	89	90	100	tm	m	C	Lr	c	w	f	m	m	1	0	0	0	0					3			Sr				t	f
MR-53	90	91	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0					2			Sm;Sr					
MR-53	91	92	98	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					2			Sr;Sm					
MR-53	92	93	99	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.1	Bn	d	2			Sr;Sm					
MR-53	93	94	99	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2	Bn	d	3			Sr					
MR-53	94	95	95	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					4			Sr				t	f
MR-53	95	96	100	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					3			Sr;Sm				t	f
MR-53	96	97	98	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.2			5			Sr				t	f

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-53	33	34	24	fd	10	n	0				
MR-53	34	35	9								Abundant pyrite-turning ss yellow colour
MR-53	35	36									
MR-53	36	37	14								
MR-53	37	38	30								
MR-53	38	39	7								
MR-53	39	40									
MR-53	40	41									
MR-53	41	42	0.5								
MR-53	42	43	3								
MR-53	43	44	2	ft;ft	40;40	qo;y	100;10				Silicified zone between 2 faults?, one fault is lined with clay
MR-53	44	45									LzL/MF contact at either 44.83m woth last pebble (7mm) or at 44.7m with the last coarse bed, contact gradational
MR-53	45	46									
MR-53	46	47									
MR-53	47	48									
MR-53	48	49		fd	20	py					
MR-53	49	50	0.5								
MR-53	50	51									
MR-53	51	52									
MR-53	52	53									
MR-53	53	54									
MR-53	54	55									
MR-53	55	56									
MR-53	56	57									
MR-53	57	58									
MR-53	58	59									
MR-53	59	60									
MR-53	60	61									
MR-53	61	62									
MR-53	62	63									
MR-53	63	64									
MR-53	64	65									
MR-53	65	66									
MR-53	66	67	0.5								
MR-53	67	68									
MR-53	68	69									
MR-53	69	70	0.5								
MR-53	70	71									
MR-53	71	72									
MR-53	72	73									
MR-53	73	74									
MR-53	74	75									
MR-53	75	76									
MR-53	76	77									
MR-53	77	78									
MR-53	78	79									
MR-53	79	80									
MR-53	80	81									
MR-53	81	82									
MR-53	82	83									
MR-53	83	84									
MR-53	84	85									
MR-53	85	86									
MR-53	86	87									
MR-53	87	88	0.5								
MR-53	88	89									
MR-53	89	90	0.5								
MR-53	90	91									
MR-53	91	92									
MR-53	92	93									
MR-53	93	94									
MR-53	94	95	0.5								
MR-53	95	96	0.5								
MR-53	96	97	0.5								

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSSG Grain Size	PSSS Grain Size	PSSF Grain Size	PSSM Grain Size	PSSP Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-53	97	98	99	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0	w	1.4			2			Sr;Sm					
MR-53	98	99	100	t	m	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0			Bk	d	3			Sr;Sm					
MR-53	99	100	98	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					3			Sr				t	f
MR-53	100	101	100	t	m	P	Lr	c	w	f	m	m	1	0	0	0	0	d	0.2			5			Sm;Sr				t	f
MR-53	101	102	99	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.5			3			Sr;Sm				t	f
MR-53	102	103	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	g	0.4			2			Sm;Sr				t	f
MR-53	103	104	97	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	g	0.2			9			Sr				t	f
MR-53	104	105	98	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					8			Sr				t	f
MR-53	105	106	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					5			Sr				t	f
MR-53	106	107	90	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					8			Sr				t	f
MR-53	107	108	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					4			Sr				t	f
MR-53	108	109	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					3			Sr;Sl				t	f
MR-53	109	110	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	g	0.5			4			Sr				t	f
MR-53	110	111	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	w	0.5			4			Sm;Sr				t	f
MR-53	111	112	99	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	w	0.5			5			Sr					
MR-53	112	113	99	t	p	C	Lr	e	w	f	m	m	1	0	0	0	0					8			Sr;Sm				t	f
MR-53	113	114	96	t	p	C	Lr	c	m	f	m	m	1	0	0	0	0					25			Sr				t	f
MR-53	114	115	98	t	p	P	U	c	w	f	m	m	1	0	0	0	0					25			Sr				t	f
MR-53	115	116	90	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					20			S?				t	f
MR-53	116	117	96	tm	p	C	U	c	m	f	m	m	1	0	0	0	0					25			S?				t	f
MR-53	117	118	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					18			Sr				t	f
MR-53	118	119	100	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0					14			Sr				t	f
MR-53	119	120	99	tm	p	C	U	c	m	f	m	m	1	0	0	0	0	w	2.8	Bn	d	15			Sr;Sm				t	f
MR-53	120	121	98	tm	p	P	U	c	m	f	m	m	1	0	0	0	0			Bn	d	30			Sr				t	f
MR-53	121	122	97	t	p	P	U	c	s	f	m	m	1	0	0	0	0					30			Sm;S?				t	f
MR-53	122	123	98	t	p	C	U	c	w	f	m	m	1	0	0	0	0					30			Sr				t	f
MR-53	123	124	97	t	p	P	U	c	w	f	m	m	1	0	0	0	0					40			Sr				t	f
MR-53	124	125	94	t	p	C	U	f	w	f	m	m	1	0	0	0	0					50			S?				t	f
MR-53	125	126	99	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0					30			Sr				t	f
MR-53	126	127	97	tm	p	P	U	f	w	f	m	m	1	0	0	0	0					36			S?				t	f
MR-53	127	128	98	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0					20				Fl			t	f
MR-53	128	129	100	tm	p	C	Lr	c	w	f	f	m	1	0	0	0	0					15				Fr;Fm			t	f
MR-53	129	130	97	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0					30			Sr				t	f
MR-53	130	131	95	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					30			Sr				t	f
MR-53	131	132	97	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0					25			Sr				t	f
MR-53	132	133	96	tm	p	C	Lr	c	w	f	f	m	2	0	0	0	0					20				Fr			t	f
MR-53	133	134	97	t	p	C	U	c	w	f	f	m	1	0	0	0	0					20				Fl			t	f
MR-53	134	135	97	tm	p	C	U	c	w	f	f	m	1	0	0	0	0					25				Fr			t	f
MR-53	135	136	95	t	p	C	Lr	c	w	f	m	m	2	0	0	0	0					40			Sl;S?				t	f
MR-53	136	137	100	t	p	C	Lr	c	w	f	m	m	2	0	0	0	0					6			Sm;Sl					
MR-53	137	138	100	t	p	C	Lr	c	w	f	m	m	2	0	0	0	0					6			Sr;Sl					f
MR-53	138	139	98	t	p	C	Lr	c	w	f	m	c	3	1	0	0	0	w	0.5			14			Sr;Sl				t	f
MR-53	139	140	92	t	p	C	Lr	c	w	f	f	c	3	1	0	0	0					12			Sl	Fr			t	f
MR-53	140	141	99	t	p	C	U	c	w	f	f	m	1	0	0	0	0					5				Fm;Fr			t	f
MR-53	141	142	99	tm	p	P	Lr	c	w	f	m	c	3	1	0	0	0					14			Sr				t	f
MR-53	142	143	95	tm	p	C	Lr	c	w	f	m	c	3	2	0	0	0					20			Sr;Sm				t	f
MR-53	143	144	100	m	p	C	Lr	c	w	f	c	vc	11	6	0	0	0					15			Sm				t	f
MR-53	144	145	97	a	p	C	Lr	c	w	m	c	vc	6	2	0	0	0					8			Sm				t	f
MR-53	145	146	98	a	p	C	Lr	c	w	m	c	c	4	1	0	0	0					3			Sm				t	f
MR-53	146	147	100	a	p	C	Lr	c	w	m	c	vc	10	5	0	0	0					2			Sm					
MR-53	147	148	100	a	m	C	Lr	c	w	m	c	c	15	3	0	0	0					3		G1	Sm					
MR-53	148	149	92	a	p	C	U	c	w	m	c	vc	14	4	0	0	0					3			Sx;Sm				t	f
MR-53	149	150	99	a	p	C	Lr	c	w	m	c	c	5	2	0	0	0					2			Sl				t	f
MR-53	150	151	100	a	p	C,Y	U	c	w	m	c	vc	25	4	0	0	0					3			Sl;Sm					
MR-53	151	152	94	a	p	P	Sp	c	w	m	c	vc	7	2	0	0	0					3			Sl;Sm					
MR-53	152	153	100	a	p	C	U	c	w	m	c	c	27	1	0	0	0					2			Sx;Sm				t	f
MR-53	153	154	100	a	p	C	U	c	w	m	c	c	5	1	0	0	0					6			Sm				t	f
MR-53	154	155	98	a	p	C	Lr	c	w	m	c	vc	5	2	0	0	0					4			Sm				t	f
MR-53	155	156	99	a	m	P,M	M	c	w	m	c	c	8	1	0	0	0					8			Sl				t	f
MR-53	156	157	100	a	p	C	U	c	w	m	c	c	5	1	0	0	0					3			Sl				t	f
MR-53	157	158	99	a	p	C	Lr	c	w	m	c	c	2	0	0	0	0					2			Sl				t	f
MR-53	158	159	98	a	p	C	U	c	w	m	c	vc	4	1	0	0	0					2			Sl					
MR-53	159	160	98	a	p	C	U	f	w	m	c	c	2	0	0	0	0					4			S?				t	i
MR-53	160	161	100	a	p	C	U	e	w	m	c	c	5	1	0	0	0					7			Sm				t	i

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Strutt. Angle	Tec. Struct.FF Cement	Tec. Struct.FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-53	97	98									
MR-53	98	99									
MR-53	99	100	0.5	fd	20	n	0				
MR-53	100	101	0.5								
MR-53	101	102	0.5	fd	20	n	0				
MR-53	102	103	1								
MR-53	103	104	0.5								
MR-53	104	105	0.5								
MR-53	105	106	0.5								
MR-53	106	107	0.5								
MR-53	107	108	0.5								
MR-53	108	109	0.5								
MR-53	109	110	0.5								
MR-53	110	111	0.5								
MR-53	111	112									
MR-53	112	113	0.5								
MR-53	113	114	2								
MR-53	114	115	2								Broken core
MR-53	115	116	1	bx;ft	30	sc;su	250;10				Brecciated fault zone, broken core
MR-53	116	117	2	bx	30	sc	300				Brecciated faulted zone
MR-53	117	118	1	fr	30	qd	1				
MR-53	118	119	1								
MR-53	119	120	0.5	bx		qo	130				Silicified fractured/fault zones
MR-53	120	121	1	ft	30	y	1				
MR-53	121	122	0.5	ft;ft	60;30	y;y	1;1				Silicified fracture zone, clay filled fractures/faults
MR-53	122	123	1	ft;ft	70;10	y;y	150;60				two large clay filled faults?, low angled contacts
MR-53	123	124	10	fs	5	n	0				
MR-53	124	125	12								Broken core
MR-53	125	126	4	ft;ft;ft	10;10;5	y;y;y	10;12;10				
MR-53	126	127	1	ft	40	y	300				
MR-53	127	128	2	ft	30	y	200				
MR-53	128	129	0.5								
MR-53	129	130	2								
MR-53	130	131	1	fd	10	y	1				
MR-53	131	132	1	fr	10	y	1				
MR-53	132	133	1								
MR-53	133	134	1								
MR-53	134	135	1								
MR-53	135	136	3	ft;ft	20;20	y;y	20;5				Broken core
MR-53	136	137									
MR-53	137	138	0.5								
MR-53	138	139	1								
MR-53	139	140	1								
MR-53	140	141	0.5								
MR-53	141	142	1								
MR-53	142	143	1	fr	10	y	1				large FP clasts (8cm) are floating in MF
MR-53	143	144	1	fr	50	s	4				MF/FP contact at 143.36m, largeFP clast 13cm above contact
MR-53	144	145	0.5	fr	50	su	10				
MR-53	145	146	0.5								
MR-53	146	147									
MR-53	147	148									
MR-53	148	149	0.5								
MR-53	149	150	0.5								
MR-53	150	151									As a yellow spot 7 by 5 cm
MR-53	151	152		fr	20	qo	1				
MR-53	152	153	0.5								
MR-53	153	154	0.5								
MR-53	154	155	0.5								
MR-53	155	156	1								
MR-53	156	157	0.5								
MR-53	157	158	0.5								
MR-53	158	159									
MR-53	159	160	4	ft	20	y	20				
MR-53	160	161	15	ft	20	su	80				

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Darkness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydrocarbon Type	Hydrocarbon Distrib.
MR-53	161	162	100	a	p	C	U	e	w	m	c	vc	12	3	0	0	0					5			Sm				t	f
MR-53	162	163	100	a	p	C,M	B	c	w	m	c	vc	7	2	0	0	0					6			Sm				t,t	t,f
MR-53	163	164	99	a	m	C,M	M	c	w	m	c	g	18	7	0	0	0					9			Sm				t,t	t,f
MR-53	164	165	100	a	m	C,M	M	c	w	m	c	vc	12	5	0	0	0					2			Sm				t	f
MR-53	165	166	100	a	p	C	Lr	c	w	m	c	c	7	3	0	0	0					2			Sm					
MR-53	166	167	100	a	p	P	Sr	c	w	m	c	c	5	2	0	0	0					3			Sm					
MR-53	167	168	98	a	p	P	Sr	c	w	m	c	vc	15	5	0	0	0	g	0.4			5			Sm				t	f
MR-53	168	169	98	a	p	C	U	c	w	m	c	vc	27	9	0	0	0					6			Sm				t,t	t,f
MR-53	169	170	90	a	p	C,Gn	B	c	m	m	c	vc	13	3	0	0	0					8			Sm				t	f
MR-53	170	171	97	a	p	C,Gn	B	c	m	m	c	vc	10	3	0	0	0					5			Sm				t	f
MR-53	171	172	100	a	p	C,Gn	B	c	w	m	c	vc	8	4	0	0	0					4			Sm					
MR-53	172	173	98	a	p	C,Gn	B	c	m	m	c	g	12	8	0	0	0					8			Sm					
MR-53	173	174	98	a	m	Gn,Gy	M	c	w	m	c	g	10	8	0	0	0					5			Sm					
MR-53	174	175	100	a	m	Gy,Gn,M	M	c	w	m	c	pe	13	13	0	0	0					4			Sm			Pm		
MR-53	175	176	90	a	d	M	B	c	w	m	c	pe	15	10	0	0	3					2		Gm	Sm			Pm		
MR-53	176	177	100	a	m	P,Gn	M	c	w	m	c	c	8	2	0	0	0					2			Sm					
MR-53	177	178	99	a	m	P,Gn	B	c	w	y	c	pe	16	10	12	0	4	d	1			2		Gm	Sm		Mh	Pm		
MR-53	178	179	85	a	p	P,Gn	B	c	w	y	c	vc	7	2	18	0	0					2			Sm		Mh			
MR-53	179	180	98	a	m	O	B	c	w	m	c	c	20	4	6	0	4					4		Gm	Sm		Mh			
MR-53	180	181	95	a	p	C,Gn,O	B	e	w	y	c	c	5	1	6	0	0					6			Sm		Mh			
MR-53	181	182	95	a	p	P,Gn	M	c	w	m	c	c	2	0	0	0	0					2								
MR-60	21	22	70	tm	p	C	Lg	c	w	f	m	m	2	0	0	0	0			Bn	l	1			Sp					
MR-60	22	23	94	t	p	P	Lg	c	w	f	m	m	4	1	0	0	0					4			Sx				t	f
MR-60	23	24	97	t	p	P	Lr	c	w	vf	m	m	2	0	0	0	0			Bk	d	4			Sx	Fx			t	f
MR-60	24	25	98	t	p	P,C	Lr,Sr	c	w	f	m	m	2	0	0	0	0			Bk	d	4			Sr				t,t	t,f
MR-60	25	26	98	t	p	P,Y	Lr	d	w	f	m	c	6	1	0	0	0			Bk	d	6			Sx				t,t	t,f
MR-60	26	27	98	t	p	P,Y	Lr	c	w	f	m	vc	14	2	0	0	0			Bk	d	4			Sr			Pr	t,t	t,f
MR-60	27	28	100	t	p	P	Lr,Sr	c	w	m	c	g	9	5	0	0	0			Bk	d	3			Sr				t,t	t,f
MR-60	28	29	99	tm	p	P,Y	Lr	c	w	f	m	vc	5	2	0	0	0			Bk	d	4			Sr				t,t	t,f
MR-60	29	30	98	t	p	P	Lr	c	w	f	m	vc	5	2	0	0	0			Bk	d	1			Sr				t	i
MR-60	30	31	99	t	p	P	Lr	c	w	m	m	c	5	1	0	0	0			Bk	d	2			Sr				t	i
MR-60	31	32	99	tm	m	P	Ld	c	w	vf	f	c	10	1	0	0	0			Bk	d	3	r		Sp	Fh			t	i
MR-60	32	33	99	tm	m	P	Ld	c	w	vf	f	g	4	2	0	0	0					3			Sr	Fh				
MR-60	33	34	100	tm	m	P,Y	Lr	c	w	f	c	vc	6	2	0	0	0			Bn	d	3			Sr				t,t	t,f
MR-60	34	35	99	t	m	P	Lr	c	w	f	m	c	11	2	0	0	0			Bn	d	1			Sr				t	i
MR-60	35	36	99	t	p	P	Lr	c	w	f	m	c	5	1	0	0	0								Sr	Fm				
MR-60	36	37	100	tm	p	C	U	c	w	f	m	m	4	1	0	0	0					4			Sl	Fl				
MR-60	37	38	99	tm	p	C	U	c	w	f	m	c	6	2	0	0	0					4			Sr	Fm				
MR-60	38	39	98	tm	p	P	Lr	c	w	f	m	c	6	1	0	0	0					20			Sx				t	f
MR-60	39	40	96	tm	p	C	Lr	c	w	f	m	c	1	0	0	0	0	p	0.2			20			Sp				t	f
MR-60	40	41	99	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0	d	0.3			18			Sl				t	f
MR-60	41	42	99	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2			5			Sl				t	f
MR-60	42	43	98	tm	p	P	Lr	c	w	f	f	m	1	0	0	0	0	p	0.1			8				Fl			t	f
MR-60	43	44	99	tm	p	C	Lr	c	w	f	f	m	1	0	0	0	0					6				Fl			t	f
MR-60	44	45	99	t	p	P	Lr	c	w	f	f	m	1	0	0	0	0	g	0.3			4			Sr	Fl				
MR-60	45	46	99	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.5			5			Sl				t	f
MR-60	46	47	95	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0	p	0.2			1				Fl				
MR-60	47	48	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					1			Sr	Fl				
MR-60	48	49	100	t	p	C,Gn	Lr	c	w	f	f	m	1	0	0	0	0	g	0.1			1			Sr	Fl				
MR-60	49	50	100	tm	p	C	Lr	c	w	f	f	m	1	0	0	0	0	p	0.4			3				Fl				
MR-60	50	51	100	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.3			2			Sr	Fl				
MR-60	51	52	99	t	m	P	Ld	c	w	f	m	m	1	0	0	0	0	g	0.3			1			Sp	Fl				
MR-60	52	53	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	w	0.8			3			Sl					
MR-60	53	54	99	tm	p	P	Lr	c	w	f	f	m	1	0	0	0	0									Fl				
MR-60	54	55	100	t	p	P	Lr	c	w	f	f	m	1	0	0	0	0	p	0.2	Bn	l	1				Fl				
MR-60	55	56	98	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0	g	0.1							Fl				
MR-60	56	57	100	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0	d	0.4	Bn	d	3				Fr				
MR-60	57	58	99	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	g	0.3	Bn	d				Sr					
MR-60	58	59	95	tm	p	P	Lr	c	w	f	m	m	1	0	0	0	0	d	0.3	Bn	d	1			Sl					
MR-60	59	60	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0			Bn	l				Sr;Sx					
MR-60	60	61	99	t	p	C	Lr	c	w	f	f	c	2	0	0	0	0			Bn	l	1			Sr;Sl					
MR-60	61	62	100	t	p	C	Lr,Sr	c	w	f	f	m	1	0	0	0	0	g	0.3	Bn	l				Sr;Sl					
MR-60	62	63	99	t	p	C	Lr,Sr	c	w	f	f	m	1	0	0	0	0	d	0.4	Bn	l	1			Sr				t	f
MR-60	63	64	99	tm	p	C	Lr,Sr	c	w	f	f	m	1	0	0	0	0			Bn	l				Sr	Fl				

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct.FF Cement	Tec. Struct.FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-53	161	162	1	ft	10	y	2				
MR-53	162	163	1								
MR-53	163	164	1								
MR-53	164	165	0.5								
MR-53	165	166									
MR-53	166	167									
MR-53	167	168	0.5								
MR-53	168	169	0.5								
MR-53	169	170	1	ft	20	y	12				Core is silt from 168m to base of FP
MR-53	170	171	1	fr	40	qo	3				
MR-53	171	172									
MR-53	172	173						ms	y	2	Clay replacement is green colour, core box has sooty pbl at 172.75m
MR-53	173	174									Remark on core box says sooty pbl at 173.2m
MR-53	174	175									
MR-53	175	176									Core box has sooty pbl at 175.4m
MR-53	176	177									
MR-53	177	178									
MR-53	178	179									
MR-53	179	180						ms	y	3	
MR-53	180	181						fo	y	80	broken core mainly in replaced zone
MR-53	181	182									FP/basement contact at 181.2m, contact broken down-basement dark grey colour below conact-type of pitchblende?
MR-60	21	22									Starts at 21.3m, ground core at top
MR-60	22	23	0.5	b	80	s					
MR-60	23	24	0.5	fr	40	s	1				
MR-60	24	25	0.5	fr;b	20;60	py;s					brown min. on fract poss. pyrite reduced?
MR-60	25	26	0.5	b;fr	60;20	s;s	1				
MR-60	26	27	0.5	fr	20	py					
MR-60	27	28	0.5	fr	30	py					
MR-60	28	29	0.5								
MR-60	29	30	6	fr	10	s					
MR-60	30	31	6	fr	30	py					
MR-60	31	32	1	fr;ft	20;60	py;y	4				have f. gr. ss beds
MR-60	32	33		ft	60	y	2				mostly fine gr. ss bed
MR-60	33	34	0.5	fr	20	s					
MR-60	34	35	4								
MR-60	35	36									
MR-60	36	37		fr	10	y					
MR-60	37	38		fr;fr	30;10	py;py					
MR-60	38	39	2								Bottom half of core broken
MR-60	39	40	4	fr	40	s					highly fract. and broken core
MR-60	40	41	0.5	fa	30	py	4				Slickenlines (90 degrees) on strike-slip fault
MR-60	41	42	0.5	fr;fr	45;80	qd;qd	1				
MR-60	42	43	0.5	fr	30	s					Some broken core
MR-60	43	44	0.5	b;fr	50;80	y;py	2				
MR-60	44	45		fr	40	py					
MR-60	45	46	0.5								
MR-60	46	47									
MR-60	47	48		fr	15	qd					
MR-60	48	49		fd;ft	20;20	qd					Green stylolite bands?
MR-60	49	50									
MR-60	50	51									Green stylolite bands?
MR-60	51	52									
MR-60	52	53		fr	60	s	1				
MR-60	53	54									
MR-60	54	55									
MR-60	55	56									
MR-60	56	57									
MR-60	57	58									
MR-60	58	59		ft	70	y	2				
MR-60	59	60									
MR-60	60	61									clay drapes
MR-60	61	62									
MR-60	62	63	0.5								
MR-60	63	64		b	60	s	1				

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSSG Grain Size	PSSS Grain Size	PSSF Grain Size	PSSM Grain Size	PSSP Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-60	64	65	99	t	p	C	Lr,Sr	c	w	f	f	m	1	0	0	0	0	d	0.3			2			Sr				t	f
MR-60	65	66	99	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0	p	0.2	Bn	l				Sr					
MR-60	66	67	99	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0	d	0.3			2				Fl				
MR-60	67	68	95	tm	p	C	Lr	c	w	f	f	m	1	0	0	0	0	g	0.6	Bn	l	2			Sr					
MR-60	68	69	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.3	Bn	l				Sr;Sl					
MR-60	69	70	100	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.1	Bn	l				Sr					
MR-60	70	71	99	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	w	0.5			3			Sr					
MR-60	71	72	98	tm	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0			Bn	d				Sr					
MR-60	72	73	98	tm	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	p	0.2			2			Sr					
MR-60	73	74	98	tm	p	C	Lr,Sr	c	w	f	m	c	1	0	0	0	0	d	0.2			1			Sr					
MR-60	74	75	99	tm	p	C	Lr,Sr	c	w	f	m	c	1	0	0	0	0	d	0.3						Sr					
MR-60	75	76	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.3						Sr;Sm					
MR-60	76	77	100	tm	p	C	Lr	c	w	f	m	m	3	0	0	0	0	p	0.1						Sr					
MR-60	77	78	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.4	Bn	l				Sr					
MR-60	78	79	100	t	p	C	Lr,Spu	c	w	f	f	m	1	0	0	0	0								Sr	Fr				
MR-60	79	80	87	t	p	C	Lr,Spu	c	w	f	f	m	1	0	0	0	0								Sr	Fr				
MR-60	80	81	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	g	0.4			1			Sr					
MR-60	81	82	100	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.3						Sr					
MR-60	82	83	86	tm	p	C	Lr	c	w	f	f	m	1	0	0	0	0									Fr;Fm				
MR-60	83	84	99	tm	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0								Sr					
MR-60	84	85	99	t	p	P	Lr,Sr	c	w	f	m	c	1	0	0	0	0								Sr					
MR-60	85	86	99	tm	p	C,Y	Lr	c	w	f	m	c	1	0	0	0	0					1			Sr					
MR-60	86	87	97	t	p	C	Lr	c	w	f	m	c	1	0	0	0	0	d	0.3			6			Sr					
MR-60	87	88	100	tm	p	P	Lr	c	w	f	m	m	1	0	0	0	0								Sr					
MR-60	88	89	94	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0	d	0.2						Sr					
MR-60	89	90	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					2			Sr					
MR-60	90	91	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					2			Sr;Sm					
MR-60	91	92	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.1						Sr					
MR-60	92	93	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0			Bn	l				Sr					
MR-60	93	94	100	t	p	C	Lr	c	w	f	m	c	1	0	0	0	0	d	0.2						Sr					
MR-60	94	95	100	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	p	0.2						Sm;Sr					
MR-60	95	96	100	t	p	C	Ld	c	w	f	m	m	1	0	0	0	0								Sr					
MR-60	96	97	100	t	p	C	Lr,Sr	c	w	f	f	m	1	0	0	0	0	p	0.2						Sr;Sm					
MR-60	97	98	94	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2						Sm;Sr					
MR-60	98	99	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.1						Sr					
MR-60	99	100	100	tm	p	C	Ld	c	w	f	m	m	1	0	1	0	0	p	0.2	Bn	l				Sm					
MR-60	100	101	99	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0								Sm;Sr					
MR-60	101	102	100	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					1			Sr					
MR-60	102	103	99	t	p	P	Lr	c	w	f	f	m	1	0	0	0	0					1				Fr;Fm				
MR-60	103	104	97	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0								Sm;Sr					
MR-60	104	105	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0								Sr					
MR-60	105	106	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					2			Sr					
MR-60	106	107	92	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					2			Sr					
MR-60	107	108	99	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					1			Sr					
MR-60	108	109	99	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0					3			Sm;Sr					
MR-60	109	110	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	w	0.4			1			Sr					
MR-60	110	111	100	t	p	C	Lr,Sr	c	w	f	f	m	1	0	0	0	0	p	0.1			1				Fm				
MR-60	111	112	100	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					1			Sr					
MR-60	112	113	95	tm	p	C	Lr,Sr	c	w	f	f	m	1	0	0	0	0					1			Sr	Fm				
MR-60	113	114	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.3			2			Sr	Fm				
MR-60	114	115	100	t	p	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0	d	0.1			1			Sr					
MR-60	115	116	95	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0					2			Sr					
MR-60	116	117	100	tm	p	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0					2			Sr					
MR-60	117	118	100	tm	p	P	Lr	c	w	f	m	m	1	0	0	0	0					2			Sr	Fm				
MR-60	118	119	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					1			Sr					
MR-60	119	120	100	t	p	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0			Bn	d	2			Sr;Sm					
MR-60	120	121	99	t	m	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0					2			Sr;Sm					
MR-60	121	122	93	tm	p	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0			Bk	d	1			Sr					
MR-60	122	123	100	tm	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0								Sr					
MR-60	123	124	100	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					1			Sr;Sm					
MR-60	124	125	95	tm	m	P	Ld,Sr	c	w	f	m	m	1	0	0	1	0					1			Sr					
MR-60	125	126	100	tm	p	P	Ld,Sr	c	w	f	m	m	1	0	0	0	0								Sr					
MR-60	126	127	100	tm	m	P	Ld	c	w	f	m	m	1	0	0	0	0	p	0.2			2			Sr					
MR-60	127	128	100	tm	m	P	Ld	c	w	f	m	m	1	0	0	0	0	d	0.2	Bn	l	2			Sr					

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-60	64	65	0.5	fr	60	s	1				
MR-60	65	66									
MR-60	66	67									
MR-60	67	68		b	60	s	1				
MR-60	68	69									
MR-60	69	70									
MR-60	70	71									Some broken core
MR-60	71	72									
MR-60	72	73		ft	10	s	1				
MR-60	73	74		fr	10	s	1				
MR-60	74	75									
MR-60	75	76									
MR-60	76	77									
MR-60	77	78									
MR-60	78	79									
MR-60	79	80									
MR-60	80	81		fr	20	y					
MR-60	81	82									
MR-60	82	83									
MR-60	83	84									
MR-60	84	85									
MR-60	85	86									
MR-60	86	87									Alot of drilling mud in fractures
MR-60	87	88									
MR-60	88	89									
MR-60	89	90									Clay drapes
MR-60	90	91									
MR-60	91	92									
MR-60	92	93									
MR-60	93	94									
MR-60	94	95									
MR-60	95	96									
MR-60	96	97									
MR-60	97	98									
MR-60	98	99									
MR-60	99	100									
MR-60	100	101									
MR-60	101	102									
MR-60	102	103									
MR-60	103	104									
MR-60	104	105									
MR-60	105	106									
MR-60	106	107									
MR-60	107	108									
MR-60	108	109									
MR-60	109	110									
MR-60	110	111									
MR-60	111	112									
MR-60	112	113									
MR-60	113	114									
MR-60	114	115									
MR-60	115	116									
MR-60	116	117									
MR-60	117	118									
MR-60	118	119									
MR-60	119	120									Clay drapes
MR-60	120	121									
MR-60	121	122									
MR-60	122	123									
MR-60	123	124									
MR-60	124	125									
MR-60	125	126									
MR-60	126	127									
MR-60	127	128									

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Darkness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2mm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydrocarbon Type	Hydrocarbon Distrib.
MR-60	128	129	100	t	m	P	Ld,Sr	c	w	f	m	m	4	1	2	0	0					1			Sr					
MR-60	129	130	100	t	p	C	Lr	c	w	f	m	c	3	1	0	0	0			Bn	l	3			Sr;Sm					
MR-60	130	131	92	t	m	C	Ld	c	w	f	m	c	3	1	0	0	0								Sr					
MR-60	131	132	100	t	p	C	Lr,Sr	c	w	f	m	c	3	1	0	0	0					2			Sr;Sm					
MR-60	132	133	98	t	p	C	Lr,Sr	c	w	f	m	c	2	0	0	0	0					2			Sr	Fm				
MR-60	133	134	98	tm	p	C	Lr	c	w	f	m	c	2	0	0	5	0					1			Sr		Mh			
MR-60	134	135	100	t	p	P	Lr	c	w	f	m	m	2	0	0	0	0			Bn	l	3			Sr				t	f
MR-60	135	136	100	t	p	C	Lr	c	w	f	m	m	4	1	0	0	0					4			Sr					
MR-60	136	137	100	t	p	C	Lr	c	w	f	m	c	3	1	0	0	0			Bn	l	4			Sr					
MR-60	137	138	98	t	m	C	Lr	c	w	f	m	c	3	1	0	0	0					2			Sr			Phc		
MR-60	138	139	100	t	m	P	Lr	c	w	f	m	c	3	1	0	3	0					1			Sr		Mh			
MR-60	139	140	92	tm	p	C	Lr	c	w	f	m	c	2	0	0	0	0	p	0.1	Bn	d	2			Sr					
MR-60	140	141	100	t	m	C	Lr	c	w	f	m	c	4	1	0	0	0			Bn	l	2			Sr					
MR-60	141	142	100	tm	p	C	Lr	c	w	f	m	c	3	1	0	0	0	d	0.1			4			Sr					
MR-60	142	143	98	mt	m	P	Ld	c	w	f	m	c	2	0	0	0	0					2			Sr					
MR-60	143	144	98	tm	m	C	Ld	c	w	f	m	c	3	1	0	0	0	d	0.1			1			Sr					
MR-60	144	145	99	t	m	P	Ld	c	w	f	m	c	2	0	0	2	0			Bn	d.	1			Sr				t	f
MR-60	145	146	93	tm	m	C	Ld	c	w	f	m	c	6	1	0	4	0	p	0.1			4		G1	Sr;Sm					
MR-60	146	147	98	tm	d	C	Ld	c	w	y	m	c	6	1	9	0	0					4			Sm		Mh			
MR-60	147	148	99	tm	m	O	Ld	c	w	f	m	c	6	1	0	0	0			Bk	l	1			Sm;Sx					
MR-60	148	149	100	m	m	Pu,Gn	F	c	w	m	c	g	15	4	0	0	0					3			Sm					
MR-60	149	150	100	m	m	Pu,C	M	c	w	m	c	g	11	6	0	0	0					2			Sm					
MR-60	150	151	100	m	m	Pu,C	M	c	w	m	c	g	50	7	0	0	0					1			Sm					
MR-60	151	152	92	m	m	Pu,C	M	c	w	m	c	g	9	4	0	0	0					3			Sm;Sx					
MR-60	152	153	98	m	m	Pu,P	M	c	w	m	c	g	7	5	0	0	0					3			Sm					
MR-60	153	154	100	m	m	P,Pu,Gn	M,B	c	w	m	c	g	7	4	0	0	0					2			Sm				t	f
MR-60	154	155	90	m	m	C,Pu,Gn	M,F	c	w	m	c	vc	8	4	0	0	0					4			Sm					
MR-60	155	156	100	a	m	C,Pu,Gn	M,B	c	w	m	c	vc	13	4	0	0	0			Pu	l	2			Sm;Sh					
MR-60	156	157	99	a	m	Pu,P	M	c	w	m	c	g	11	12	0	0	0					1			Sm					
MR-60	157	158	95	a	m	Pu,P,Gn	M	c	w	m	c	vc	25	6	0	0	0					1			Sm					
MR-60	158	159	100	a	m	Pu,P,Gn	M	c	w	m	c	vc	15	4	0	0	0					3			Sm					
MR-60	159	160	100	a	m	C,Pu,Gn	M	c	w	m	c	c	2	0	0	0	0					4			Sh					
MR-60	160	161	88	a	m	Pu,C	M	c	w	m	c	vc	4	1	0	0	0					2			Sm;Sh				t	f
MR-60	161	162	100	a	p	C,Pu,Gn	M	c	w	m	c	vc	2	0	0	0	0					10			Sm				t	f
MR-60	162	163	100	a	m	Pu,P	M	c	w	m	c	vc	2	0	0	0	0					2			Sm					
MR-60	163	164	96	a	m	Pu	M	c	w	m	c	vc	4	1	0	0	0					2			Sm					
MR-60	164	165	100	a	m	Pu,P	M	c	w	m	c	ps	11	7	0	0	0					2			Sm					
MR-60	165	166	100	a	p	P,Pu	M	c	w	m	c	g	7	5	0	0	0								Sm					
MR-60	166	167	97	a	m	Pu,P,Gn	M	c	w	m	c	vc	2	0	0	0	0					3			Sm				t	f
MR-60	167	168	100	a	m	Pu,P	M	c	w	m	c	g	6	5	0	0	0					1			Sm					
MR-60	168	169	100	a	m	Pu,P	M,Sr	c	w	m	c	vc	15	5	0	0	0					2			Sm				t	f
MR-60	169	170	86	a	m	Pu,P	M,Sr	c	w	m	c	g	10	5	0	0	0					1			Sm					
MR-60	170	171	98	a	m	Pu,P	M,Gn	c	w	m	c	vc	7	4	0	0	0					4			Sm				t	f
MR-60	171	172	100	a	m	Pu,P,M	M	c	w	m	c	g	9	6	0	0	0					4			Sm				t	f
MR-60	172	173	99	a	m	P,Pu	M	c	w	m	c	vc	2	0	0	0	0					2			Sm				t	f
MR-60	173	174	99	a	m	P,Pu	M	c	w	m	c	g	24	6	0	0	0					3			Sm				t	f
MR-60	174	175	100	a	m	P,Pu,Gn	M,B	c	w	m	c	g	15	13	0	0	0					1			Sm					
MR-60	175	176	91	a	p	P,Pu,R	B	c	w	m	c	ps	45	12	0	0	0					3			Sm				t	f
MR-60	176	177	100	a	p	C,Gn	B	c	w	m	c	g	15	7	0	0	0					5			Sm				t	f
MR-60	177	178	98	a	p	P	U	c	w	m	c	g	23	7	0	0	0					5			Sm				t	f
MR-60	178	179	100	a	m	P,Pu	B	c	w	m	c	g	30	8	0	0	0					2		G1	Sm				t	f
MR-60	179	180	98	a	p	P,Gn	M	c	w	m	c	ps	30	9	0	0	0					3			Sm				t	f
MR-60	180	181	98	a	p	P,Gn	B	c	w	m	c	vc	5	2	0	0	0					3			Sm					
MR-60	181	182	90	a	p	P,Pu,Gn	B	c	w	m	c	g	13	12	0	0	0					1			Sm					
MR-60	182	183	100	a	p	C,Pu	B	c	w	f	c	g	10	5	0	0	0					5			Sm	Fm			t	f
MR-60	183	184	99	a	p	P,Gn	Lr	c	w	m	c	ps	9	14	0	0	0					8			Sm			Ph	t	f
MR-60	184	185	93	a	m	P,Pu,Y	M	c	w	f	c	g	9	9	0	0	6					7		Gh	Sm				t	f
MR-60	185	186	100	a	m	Pu,P	M	c	w	m	c	ps	12	28	0	0	4					1		Gm	Sm					
MR-60	186	187	100	a	m	P,Pu	Lr,M	c	w	m	m	g	8	20	0	0	6	w	3.5			3		Gm	Sm				t	f
MR-60	187	188	99	a	m	Pu,P	M,Lr	c	w	m	m	ps	9	12	0	0	0					1			Sm			Pm		
MR-60	188	189	100	a	m	P,Pu	Lr	c	w	m	m	pm	50	20	0	0	9							Gh	Sm			Ph		
MR-60	189	190	98	a	m	P,Pu	M	c	w	m	c	ps	16	18	0	0	0					4			Sm	Fh		Pm;Ph	t	f
MR-60	190	191	95	a	m	M,P	M	c	w	f	m	g	10	6	0	0	0					4			Sm			Px	t	f
MR-60	191	192	100	a	p	P,Gn	B	c	w	m	c	g	5	15	0	0	5					2		Gh	Sm			Ph	t	f

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-60	128	129									
MR-60	129	130									
MR-60	130	131									
MR-60	131	132									
MR-60	132	133									
MR-60	133	134									
MR-60	134	135	0.5								
MR-60	135	136		fd	30						
MR-60	136	137									
MR-60	137	138									
MR-60	138	139									
MR-60	139	140									
MR-60	140	141		fr	20;0	py;qd	1;0				
MR-60	141	142		fd	20	qd	1				
MR-60	142	143		fr	30	qd					
MR-60	143	144									
MR-60	144	145	0.5								
MR-60	145	146		fr	20	qd					
MR-60	146	147									FP clast (8 by 3 cm) floating in MF
MR-60	147	148									sharp MF/FP contact at 147.92m, 3cm qtz vien 1cm above contact, heavy min. banding at contact and above qtz vien, no pebbles above contact for 70cm
MR-60	148	149		fr;ft	20;60	o;o	10				Chlorite concentrating along bedding?
MR-60	149	150									
MR-60	150	151									
MR-60	151	152		fr	20	h					
MR-60	152	153		ft	25	o-	15				a fault? contains 2cm of f-m gr. ss (MF?), orange coloured, and has a pyrite? vien overprinting
MR-60	153	154	0.5								
MR-60	154	155									chlorite along fractures
MR-60	155	156									See some heavy min. banding on planar looking bedding
MR-60	156	157									
MR-60	157	158									
MR-60	158	159									
MR-60	159	160		ft;ft;ft	50;80;40	o;o;y	5;10;1				2 faults? filled with orange f-c gr. ss, one is closed off and has a piece of wall rock in it, not sure if fault related-may be hematite overprinted
MR-60	160	161	0.5								
MR-60	161	162	0.5	ft;ft;ft	50;30;10	ac;ac	10;15				3 faulted/brecciated zones, orange coloured f-c gr. ss infills the zones, brecciated wall rock in one zone, zones possibly infilled by ss and hem. replaced?
MR-60	162	163									Styl ?
MR-60	163	164									
MR-60	164	165		ft	30	ac	2				possible orange fault gouge like previous
MR-60	165	166									Chloritized styl ?
MR-60	166	167	0.5								
MR-60	167	168									
MR-60	168	169	0.5								
MR-60	169	170									
MR-60	170	171	0.5								
MR-60	171	172	0.5								
MR-60	172	173	0.5								Styl ?
MR-60	173	174	0.5								
MR-60	174	175									
MR-60	175	176	0.5								
MR-60	176	177	0.5								
MR-60	177	178	1	fr	20	qo	3				
MR-60	178	179	0.5								Styl.
MR-60	179	180	0.5								
MR-60	180	181									red stylolites
MR-60	181	182									red styl ?
MR-60	182	183	0.5								30cm section of f. gr. ss, possibly bounded by faults?
MR-60	183	184	0.5								
MR-60	184	185	1								Yellow staining around fractures and within finner gr. bed, f-m gr bed 55cm
MR-60	185	186									
MR-60	186	187	0.5								Large red coloured mud zone-probably not an intraclast
MR-60	187	188									
MR-60	188	189									
MR-60	189	190	0.5								f. gr bed 4cm
MR-60	190	191	0.5								
MR-60	191	192	0.5								

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-60	192	193	95	a	p	P,Pu,Gn	M,Lr	c	w	m	m	vc	33	4	0	0	0					2			Sm			Ph	t	f
MR-60	193	194	90	a	m	Pu,P,Gn	M,Lr	c	w	m	c	vc	9	3	0	0	0					1			Sm					
MR-60	194	195	100	a	m	Pu,P	M,Lr	c	w	m	c	g	12	10	0	0	0					3			Sm			Ph	t	f
MR-60	195	196	100	a	m	P,Pu,Gn	M,Lr	c	w	m	c	vc	8	4	0	0	0					3			Sm				t	f
MR-60	196	197	95	a	m	P,Pu,Gn	M,Lr	c	w	m	c	g	20	6	0	0	0					2			Sm			Pm	t	f
MR-60	197	198	100	a	p	P,Pu	B,Lr	c	w	m	c	vc	5	2	0	0	0					1			Sm				t	f
MR-60	198	199	100	a	p	P	Lr	c	w	m	c	g	37	11	0	0	0					1			Sm			Ph	t	f
MR-60	199	200	93	a	p	P,Pu	M,Lr	c	w	m	c	ps	32	16	0	0	0					1			Sm				t	f
MR-60	200	201	100	a	m	Pu,P,Gn	B	c	w	f	m	g	99	16	0	0	0					3			Sm			Pm	t	f
MR-60	201	202	98	a	m	P	Lr	c	w	m	c	pv	88	20	6	0	11					4		Gh	Sm		Mh		t	f
MR-60	202	203	97	a	p	P	Lr	c	w	m	m	vc	25	3	0	0	0					12			Sm				t	f
MR-60	203	204	100	a	p	P,Gn	Lr,M	c	w	m	m	g	5	5	0	0	0					7			Sm				t	f
MR-60	204	205	100	a	p	P,Gn	Lr	c	w	m	m	vc	4	1	0	0	0					4			Sm				t	f
MR-60	205	206	92	a	p	P,Gn	Lr	c	w	m	c	vc	5	1	0	0	0					1			Sm					
MR-60	206	207	100	a	m	Pu,P	B	c	w	m	c	g	113	13	0	0	0							Gh	Sm					
MR-80	27	28	50	t	p	C	Lg	c	w	f	m	m	4	1	0	0	0								Sr;Sm					
MR-80	28	29	85	t	m	C	Ld	c	w	f	m	m	2	0	0	0	0			Bk	d	6	s		Sr					
MR-80	29	30	99	t	m	P	Ld	c	w	f	m	m	2	0	0	0	0			Bn	d	2			Sr					
MR-80	30	31	99	t	p	P	Ld	c	w	f	m	c	4	1	0	0	0			Bn	d	5	s		Sr				t	i
MR-80	31	32	99	t	p	P	Lr	c	w	f	m	m	4	1	0	0	0			Bn	d	1			Sr				t	i
MR-80	32	33	98	t	p	C	Lr	c	w	f	m	m	4	1	0	0	0			Bn	d	2			Sr				t	i
MR-80	33	34	98	tm	m	P,M	Lr	c	w	vf	f	m	22	0	0	0	0			Bn	d	6			Sr	Fh;Fm				
MR-80	34	35	90	t	m	P,Y	Ld	c	w	f	f	c	11	2	0	0	0			Bn	d	4				Fr;Fm				
MR-80	35	36	100	t	m	P,Y	Lr	c	w	f	m	c	5	2	0	0	0			Bk	d	2			Sm;Sr					
MR-80	36	37	100	t	m	P,Y	Lr	c	w	f	m	c	7	3	0	0	0			Bk	d	3	s		Sr				t	i
MR-80	37	38	95	t	m	P	Lr	c	w	f	m	vc	10	3	0	0	0			Bn	d	2			Sr				t	i
MR-80	38	39	100	t	m	P	Lr	c	w	f	m	c	14	3	0	0	0			Bk	d	6			S?;Sr				t	i
MR-80	39	40	100	t	m	P,Y	Lr	c	w	f	c	vc	8	3	0	0	0			Bk	d	1			Sr				t	i
MR-80	40	41	97	t	m	P,Y	Lr	c	w	f	c	vc	4	2	0	0	0			Bk	d	2			Sr				t	i
MR-80	41	42	100	t	m	P,Y	Lr	c	w	f	c	vc	7	2	0	0	0			Bk	d	1			Sr;Sm				t	i
MR-80	42	43	100	t	m	P,Y	Lr	c	w	f	f	m	1	0	0	0	0			Bk	d					Fr;Fm				
MR-80	43	44	96	tm	m	P,Y	Lr	c	w	f	f	m	1	0	0	0	0			Bk	d	3			Sr	Fr			t	i
MR-80	44	45	99	t	m	P,Y	Ld	c	w	f	m	c	8	3	0	0	0			Bk	d	2		G1	Sr				t	i
MR-80	45	46	100	tm	m	P,Y	Ld	c	w	f	m	vc	15	3	0	0	0			Bk	d	1			Sr					
MR-80	46	47	99	t	m	P	Lr,Sr	c	w	f	f	m	1	0	0	0	0	g	0.2	Bn	d	2				Fr				
MR-80	47	48	100	t	m	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0	g	0.7			3			Sr					
MR-80	48	49	100	t	m	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0	d	1			1			Sr	Fm				
MR-80	49	50	92	t	m	P	Ld,Sr	c	w	f	m	m	1	0	0	0	0	g	0.5	Bn	d	1			Sm	Fm				
MR-80	50	51	100	tm	m	P	Ld	c	w	f	m	m	1	0	0	0	0	g	0.2			3			Sr	Fm				
MR-80	51	52	99	tm	m	P	Lr	c	w	f	f	m	1	0	0	0	0					9				Fr;Fm			t	f
MR-80	52	53	90	tm	m	P	Ld	c	w	f	f	m	1	0	0	0	0	g	0.5	Bn	d	2				Fr;Fm			t	f
MR-80	53	54	99	t	m	P	Ld	c	w	f	f	m	1	0	0	0	0	p	0.4	Bn	d	2				Fm;Fr				
MR-80	54	55	99	tm	m	P	Lr	c	w	f	f	m	1	0	0	0	0	p	0.3	Bn	d	2				Fr;Fm				
MR-80	55	56	91	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0			Bn	d	2			Sr;Sm					
MR-80	56	57	97	tm	m	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0	g	0.2	Bn	d	5			Sm;Sx					
MR-80	57	58	99	t	m	P	Lr,Sr	c	w	f	f	m	1	0	0	0	0	p	0.1	Bn	d	5				Fm;F?				
MR-80	58	59	100	t	m	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0			Bn	d	2			Sr					
MR-80	59	60	100	t	m	P	Lr	c	w	f	f	m	1	0	0	0	0	g	0.2	Bn	d	3				Fm;F?			t	f
MR-80	60	61	100	t	m	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.3	Bn	d	3			S?					
MR-80	61	62	92	t	m	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0	p	0.1			2			Sr				t	f
MR-80	62	63	99	t	m	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.4	Bn	d	2			Sr					
MR-80	63	64	100	t	m	P	Ld	c	w	f	m	m	1	0	0	0	0	p	0.4	Bk	d	2			Sr					
MR-80	64	65	97	t	m	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0			Bn	d	2			Sr;Sm					
MR-80	65	66	99	t	m	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2	Bn	d	2			Sr;Sm					
MR-80	66	67	99	t	m	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0	p	0.2			2			Sr					
MR-80	67	68	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.1	Bn	d	2			Sr	Fm				
MR-80	68	69	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0			Bn	d	2			Sr;Sm					
MR-80	69	70	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					3			Sr					
MR-80	70	71	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					2			Sr					
MR-80	71	72	100	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.1	Bn	d	2			Sr				t	i
MR-80	72	73	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					2			Sr;Sm				t	f
MR-80	73	74	90	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.2			1			Sr					
MR-80	74	75	100	t	p	P	Lr	c	w	f	f	m	1	0	0	0	0	p	0.1			4				F?;Fm				
MR-80	75	76	100	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0					1				F?				

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct.FF Cement	Tec. Struct.FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-60	192	193	0.5								
MR-60	193	194									
MR-60	194	195	0.5								
MR-60	195	196	0.5								
MR-60	196	197	0.5								
MR-60	197	198	0.5								
MR-60	198	199	0.5								
MR-60	199	200	0.5								
MR-60	200	201	0.5								Large pebbles and cobbles in finner gr. bed as well as chlorite
MR-60	201	202	0.5								Conglomerate bed is filled with large pebbles
MR-60	202	203	0.5	fa,bx,ft	30:30:40	y,ac,y	5.2				Fractured and broken core
MR-60	203	204	0.5					fi	y	2	Replacement fault chloritized
MR-60	204	205	0.5								
MR-60	205	206									
MR-60	206	207									FF/basement contact at 206.58m. sharp contact on angle, large pebble conglomerate bed 30cm above contact
MR-80	27	28									Top of LzL at 27.5m
MR-80	28	29									Broken core
MR-80	29	30									Steep bedding
MR-80	30	31	2								
MR-80	31	32	1								
MR-80	32	33	2								Some ground up core
MR-80	33	34		fd	30	py	1				Ground up broken core
MR-80	34	35									
MR-80	35	36									
MR-80	36	37	7								
MR-80	37	38	6								
MR-80	38	39	2								
MR-80	39	40	36								Steep bedding
MR-80	40	41	26								
MR-80	41	42	35.								
MR-80	42	43									
MR-80	43	44	1								
MR-80	44	45	1								
MR-80	45	46									LzL/MF contact at 45.85m where the last coarse bed with granules is. below is fine grained so massive to x-bedded
MR-80	46	47									
MR-80	47	48									
MR-80	48	49									
MR-80	49	50									
MR-80	50	51									
MR-80	51	52	0.5	fr	60	py	1				Broken core
MR-80	52	53	0.5								
MR-80	53	54		fr	60	py	1				
MR-80	54	55									
MR-80	55	56									
MR-80	56	57		fr	60	py	1				
MR-80	57	58									
MR-80	58	59									
MR-80	59	60	0.5								
MR-80	60	61									
MR-80	61	62	0.5	fr	50	py	1				
MR-80	62	63									
MR-80	63	64									
MR-80	64	65									
MR-80	65	66									
MR-80	66	67									
MR-80	67	68									
MR-80	68	69									
MR-80	69	70									
MR-80	70	71									Clay drapes
MR-80	71	72	2								
MR-80	72	73	0.5								
MR-80	73	74									
MR-80	74	75		fr	50	py	1				
MR-80	75	76									

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSSG Grain Size	PSSS Grain Size	PSSF Grain Size	PSSM Grain Size	PSSP Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-80	76	77	100	t	p	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2	Bk	d	2			Sr					
MR-80	77	78	99	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0	p	0.1			1			Sr					
MR-80	78	79	99	t	m	C	Lr	c	w	f	f	m	1	0	0	0	0					4				Fr			t	f
MR-80	79	80	96	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0					3			Sr					
MR-80	80	81	100	t	m	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	p	0.3			2			Sr				t	f
MR-80	81	82	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2			2			Sr					
MR-80	82	83	100	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	p	0.1	Bn	d	2								
MR-80	83	84	100	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					2			Sr;Sm					
MR-80	84	85	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0					3			Sr					
MR-80	85	86	94	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	w	0.9			2			Sr					
MR-80	86	87	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					1			Sr					
MR-80	87	88	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0			Bn	d	4			Sr					
MR-80	88	89	98	tm	m	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.7	Bn	d	10			Sr				t	f
MR-80	89	90	99	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0					8			Sr				t	f
MR-80	90	91	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.1			5			Sr;Sm				t	f
MR-80	91	92	98	t	m	P	Lr	c	w	f	m	m	1	0	0	0	0					15			Sr				t	f
MR-80	92	93	99	t	m	C	Lr	c	w	f	m	m	1	0	0	3	0	d	0.5			3			Sr		Mh			
MR-80	93	94	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					4			Sr				t	f
MR-80	94	95	99	t	m	P	Lr	c	w	f	m	m	1	0	0	0	0	d	0.6			10			Sr				t	f
MR-80	95	96	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					3			Sr					
MR-80	96	97	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					2			Sr				t	f
MR-80	97	98	99	t	m	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					4			Sr				t	f
MR-80	98	99	99	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0					6			Sr	Fm				
MR-80	99	100	100	t	m	C	Lr	c	w	f	f	m	1	0	0	0	0					6			Sr	Fm			t	f
MR-80	100	101	100	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0					3				Fr				
MR-80	101	102	99	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0	d	0.3	Bn	d	3				Fr;Fm				
MR-80	102	103	99	tm	m	C	Lr	c	w	f	m	m	1	0	0	0	0	p	1	Bn	d	3			Sr	Fm				
MR-80	103	104	97	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0					2			Sr;Sm				t	f
MR-80	104	105	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.1			4			Sr;Sm				t	f
MR-80	105	106	100	t	p	C	Lr,Sd	c	w	f	m	m	1	0	0	0	0	d	0.1	Bn	d	2			Sr					
MR-80	106	107	94	t	m	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	d	0.5			2			Sr	Fm				
MR-80	107	108	100	t	p	C	Lr,Sr	c	w	f	f	m	1	0	0	0	0	p	0.2			2				Fm;Fr				
MR-80	108	109	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.5			1			Sr					
MR-80	109	110	98	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0					1			Sr	Fm			t	f
MR-80	110	111	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.1			2			Sr					
MR-80	111	112	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0					1			Sr				t	f
MR-80	112	113	100	t	m	C	Ld	c	w	f	m	m	1	0	0	0	0					1			Sr;Sm				t;t	f;i
MR-80	113	114	100	t	m	C,Y	Ld	c	w	f	m	m	1	0	0	0	0	d	0.2			1			Sr;Sm					
MR-80	114	115	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.3			1			Sr					
MR-80	115	116	99	t	m	P	Lr	c	w	f	m	m	1	0	0	0	0	d	0.7			1			Sr				t	i
MR-80	116	117	100	t	m	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0	p	0.5			2			Sr					
MR-80	117	118	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0	g	0.2						Sm;S?					
MR-80	118	119	99	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0					1			Sr					
MR-80	119	120	100	t	m	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2			2			Sr					
MR-80	120	121	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.2			2			Sr;Sm				t	f
MR-80	121	122	95	t	m	P	Ld	c	w	f	m	m	1	0	0	0	0					1			Sr					
MR-80	122	123	99	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0					3			Sr				t	f
MR-80	123	124	100	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					2			Sr;Sm					
MR-80	124	125	96	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					2			Sr;Sm				t	f
MR-80	125	126	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					4			Sr;Sm				t	f
MR-80	126	127	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					3			Sr				t	f
MR-80	127	128	100	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					6			Sr				t	f
MR-80	128	129	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0	g	0.2			4			Sr				t	f
MR-80	129	130	99	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0					7			Sr				t	f
MR-80	130	131	90	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					3			Sm;Sr				t	f
MR-80	131	132	100	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0	g	0.3	Bn	d	3				Fr;Fm			t	f
MR-80	132	133	99	t	p	C	Lr	c	w	f	m	m	2	0	1	0	0					8			Sr				t	f
MR-80	133	134	99	tm	m	C	Ld	c	w	f	m	m	2	0	0	0	0	d	0.3			4			Sr				t	f
MR-80	134	135	100	t	m	C	Ld	c	w	f	m	m	2	0	0	0	0	p	0.2			9			Sr				t	f
MR-80	135	136	99	t	p	C	Lr,Sr	c	w	f	m	m	2	0	0	0	0	d	0.7			9			Sr				t	f
MR-80	136	137	100	tm	p	C	Lr	c	w	f	m	m	2	0	0	0	0					6			Sr				t	f
MR-80	137	138	100	tm	m	P	Lr	c	w	f	m	m	3	1	0	0	0					5			Sr				t	f
MR-80	138	139	100	t	m	C	Lr	c	w	f	m	m	2	0	0	2	0					4			Sr	Fm			t	f
MR-80	139	140	100	t	p	C	Ld	c	w	f	m	m	2	0	0	0	0	w	0.5			2			Sr				t	f

Hole ID	Depth From (m)	Depth To (m)	Hydro- carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-80	76	77									
MR-80	77	78									
MR-80	78	79	0.5								
MR-80	79	80									
MR-80	80	81	0.5								
MR-80	81	82									
MR-80	82	83									
MR-80	83	84									
MR-80	84	85									
MR-80	85	86									
MR-80	86	87									
MR-80	87	88									
MR-80	88	89	0.5								Fractured and broken
MR-80	89	90	0.5	fr	10	py	1				
MR-80	90	91	0.5								
MR-80	91	92	1								Core fractured and broken
MR-80	92	93									
MR-80	93	94	0.5								
MR-80	94	95	0.5								
MR-80	95	96									
MR-80	96	97	0.5								
MR-80	97	98	0.5	fr	10	py	1				
MR-80	98	99									
MR-80	99	100	0.5								
MR-80	100	101									
MR-80	101	102									
MR-80	102	103									
MR-80	103	104	0.5								
MR-80	104	105	0.5								
MR-80	105	106									
MR-80	106	107									Clay drapes
MR-80	107	108									
MR-80	108	109									
MR-80	109	110	0.5								
MR-80	110	111									
MR-80	111	112	0.5								
MR-80	112	113	2								
MR-80	113	114									
MR-80	114	115									
MR-80	115	116	1								Clay drapes
MR-80	116	117									
MR-80	117	118									
MR-80	118	119									
MR-80	119	120									
MR-80	120	121	0.5								
MR-80	121	122									
MR-80	122	123	0.5								
MR-80	123	124									
MR-80	124	125	0.5								
MR-80	125	126	0.5								
MR-80	126	127	0.5								
MR-80	127	128	0.5								
MR-80	128	129	0.5								
MR-80	129	130	0.5								
MR-80	130	131	0.5								
MR-80	131	132	0.5								
MR-80	132	133	0.5								
MR-80	133	134	0.5								
MR-80	134	135	0.5								Clay drapes
MR-80	135	136	1								
MR-80	136	137	0.5								
MR-80	137	138	0.5								
MR-80	138	139	0.5								
MR-80	139	140	0.5								

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-80	140	141	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0								Sr					
MR-80	141	142	100	t	p	C	Lr	c	w	f	m	m	3	1	0	8	0					6		G1	Sr		Mh		t	f
MR-80	142	143	100	t	p	C	Ld	c	w	f	m	m	1	0	0	0	0	d	0.2			6			Sr				t	f
MR-80	143	144	100	t	p	C	Ld	c	w	f	m	m	1	0	0	0	0					9			Sr				t	f
MR-80	144	145	100	tm	p	C	Lr	c	w	f	m	c	2	0	0	0	0					15			Sr				t	f
MR-80	145	146	100	t	p	C	Lr	c	w	f	m	m	2	0	0	0	0	p	0.2			7			Sr				t	f
MR-80	146	147	100	tm	p	C	Lr	c	w	f	m	m	3	1	0	8	0					5			Sr;Sm		Mh		t	f
MR-80	147	148	100	tm	p	C	Lr	c	w	f	m	m	2	0	0	0	0	p	0.3			10			Sr				t	f
MR-80	148	149	100	t	p	P	Ld	c	w	f	m	m	2	0	0	0	0					7			Sr;Sm				t	f
MR-80	149	150	100	t	p	C	Lr	c	w	vf	f	m	4	1	0	0	0	w	0.4	Bn	d	6			Sr	Fm			t	f
MR-80	150	151	99	t	m	C	Ld	c	w	f	m	c	3	1	0	0	0					6			Sr				t	f
MR-80	151	152	100	tm	m	C	Lr	c	w	f	m	c	2	0	0	0	0			Bn	d	5			Sr				t	f
MR-80	152	153	100	tm	m	P	Ld	c	w	f	m	c	3	1	0	0	0			Bn	d	6			Sm				t	f
MR-80	153	154	100	tm	m	C	Ld	c	w	f	m	c	2	0	0	0	0	d	0.3			5			Sm;Sr				t	f
MR-80	154	155	94	tm	m	C	Ld	c	w	f	m	c	2	0	0	0	0					4			Sr				t	f
MR-80	155	156	100	tm	p	C	U	c	w	f	f	c	1	0	0	0	0	p	0.3			7			Sr	Fr			t;t	i;f
MR-80	156	157	100	m	p	P	Lr	c	w	f	m	vc	8	3	0	0	0					4		G1	Sr	Fr			t	f
MR-80	157	158	92	a	m	P	Ld	e	w	m	c	c	2	0	0	0	0					4			Sr				t	f
MR-80	158	159	99	a	p	C	Lr	e	w	m	c	vc	4	1	0	0	0					5			Sr;Sm				t	i
MR-80	159	160	100	a	p	C	U	f	w	m	c	c	2	0	0	0	0					4			Sr;Sm				t;t	i;f
MR-80	160	161	98	a	m	C	Ld	e	w	m	c	vc	12	1	0	0	0					8			Sm				t	f
MR-80	161	162	99	a	p	C	Lr	c	w	m	c	c	1	0	0	0	0					10			Sm				t	f
MR-80	162	163	100	a	p	P	U	e	w	m	c	c	2	0	0	0	0					10			Sm				t	f
MR-80	163	164	100	a	p	P	U	c	w	m	c	vc	2	0	0	0	0					6			Sm				t	f
MR-80	164	165	96	a	p	C	U	e	w	m	c	vc	13	2	0	0	0					10			Sm				t	f
MR-80	165	166	99	a	p	C,O	F	c	w	m	c	c	4	2	0	0	0					18			Sm				t	f
MR-80	166	167	100	a	p	C	U	c	w	m	c	vc	5	2	0	0	0					15			S?				t	f
MR-80	167	168	85	a	p	C	U	f	w	m	c	vc	10	3	0	0	0					30			Sm				t;t	f;i
MR-80	168	169	90	a	p	C	U	e	w	m	c	g	29	5	0	0	0					15			Sm				t	f
MR-80	169	170	99	a	p	C	U	c	w	m	c	g	17	8	0	0	0					8			S?				t	f
MR-80	170	171	100	a	p	P	U	c	w	f	c	vc	19	6	0	0	0					17			S?;Sl				t	f
MR-80	171	172	100	a	p	P	U	c	w	m	c	g	15	5	0	0	0					12			Sm				t	f
MR-80	172	173	98	a	p	C,O	U	f	w	m	c	vc	3	1	0	0	0					15			Sm				t	f
MR-80	173	174	99	a	p	P	U	c	w	m	c	vc	5	2	0	0	0					12			S?				t	f
MR-80	174	175	100	a	p	P	U	c	w	m	c	vc	13	6	0	0	0					5			S?					
MR-80	175	176	92	a	p	C	U	e	w	m	c	vc	39	8	0	0	0					6			Sm				t	f
MR-80	176	177	100	a	p	P,Gn	Sd	c	w	m	c	g	12	6	0	0	0					4			Sm				t	f
MR-80	177	178	100	a	p	C,Gn	B	c	w	m	c	vc	14	5	0	0	0					5			Sm				t	f
MR-80	178	179	100	a	p	C,Gn	Ppd	c	w	m	vc	vc	10	4	0	0	0					1			Sm					
MR-80	179	180	100	a	p	P,Gn	Ppd,Sr	c	w	m	c	vc	28	6	0	0	0					1			S?					
MR-80	180	181	100	a	p	P,Gn	Ppd,Sr	c	w	m	c	vc	18	6	0	0	0					1			Sm			Pm		
MR-80	181	182	70	a	p	C,Gn	Ppd	c	w	m	c	vc	30	2	0	0	0					2			Sm				t	f
MR-80	182	183	99	a	m	P,Gn	Lr	c	w	m	c	g	15	5	3	0	0					5			Sm		Mh		t	f
MR-80	183	184	75	a	m	R	B	c	w	s	c	vc	6	3	0	8	0					5			Sm		Mh		t	f
MR-80	184	185	75	a	m	O	B	c	w	s	c	c	3	1	0	28	0					3			Sh		Mh			
MR-80	185	186	98	a	m	P,O	B	c	w	m	c	g	14	6	0	5	0					7			Sm		Mh		t	f
MR-80	186	187	100	a	m	O	B	c	w	s	c	c	21	2	0	24	0					5			Sm		Mh		t	f
MR-80	187	188	100	a	m	C,Pu,Gn	M	c	w	m	c	vc	28	5	0	3	0					9			Sm		Mh		t	f
MR-80	188	189	100	a	m	P,Gn,Pu	M	c	w	m	c	g	20	14	0	0	0					3			Sm			Pm	t	f
MR-80	189	190	100	a	m	P,Gn,Pu	M	c	w	m	c	ps	55	16	0	0	0					6			Sm			Pm	t	f
MR-80	190	191	90	a	m	P,Gn,Pu	M	c	w	m	m	vc	17	3	0	0	0					6			Sm				t	f
MR-80	191	192	100	a	p	P,Pu,Gn	M,F	c	w	m	c	vc	13	6	0	0	0					2			Sm					
MR-80	192	193	100	a	p	P,Pu,Gn	M	c	w	m	c	g	60	15	0	0	5					1		Gm	Sm				t	f
MR-80	193	194	98	a	p	P,Gn,Pu	M	c	w	m	c	g	35	8	0	0	0					2			Sm			Pm		
MR-80	194	195	100	a	m	Pu,P	M	c	w	m	c	g	38	10	0	0	0					1			Sm				t	f
MR-80	195	196	100	a	p	C,Pu	M	c	w	m	c	vc	26	7	0	0	0					1			S?					
MR-80	196	197	23	a	p	C,Pu	M	c	w	m	c	g	13	4	0	0	0								Sm					
MR-82	32	33	50	t	m	C	Lg	c	w	f	f	m	1	0	0	0	0			Bn	d	3			Sr	Fm			t	i
MR-82	33	34	100	t	p	P	Lr,Sr	c	w	f	f	m	8	1	0	0	0			Bn	d	4	s	G1	Sr	Fm			t	i
MR-82	34	35	100	t	m	P	Lg,Sr	c	w	f	m	c	10	2	0	0	0					2	s	G1	Sx				t	f
MR-82	35	36	100	t	p	P	Lg	c	w	f	f	m	9	2	0	0	0			Bk	d	2	s		Sr	Fm			t	i
MR-82	36	37	99	t	m	P	Lr	c	w	f	f	m	12	1	0	0	0			Bk	d	3			Sr	Fr			t;t	i;f
MR-82	37	38	100	t	p	C	Lr	c	w	f	m	c	7	1	0	0	0			Bk	d	2			Sr	Fm			t	i
MR-82	38	39	99	t	p	C	Lg	c	w	f	m	vc	4	2	0	0	0			Bk	d	3			Sr				t;t	i;f

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-80	140	141									High angled x beds
MR-80	141	142	0.5								
MR-80	142	143	0.5								
MR-80	143	144	0.5								
MR-80	144	145	0.5	ft	20	y	2				
MR-80	145	146	0.5								Some steep bedding
MR-80	146	147	0.5								
MR-80	147	148	0.5								
MR-80	148	149	0.5								
MR-80	149	150	0.5								
MR-80	150	151	0.5								
MR-80	151	152	0.5								Clay drapes
MR-80	152	153	0.5								
MR-80	153	154	0.5								
MR-80	154	155	0.5								Steep bedding
MR-80	155	156	0.5								
MR-80	156	157	0.5								MF/FP contact at 156.18m, sharp contact - above is fine gr ss massive, below is med-c ss with granules and cross beds
MR-80	157	158	0.5								
MR-80	158	159	3								Core if friable and permeable
MR-80	159	160	0.5	ft	5	y	2				
MR-80	160	161	0.5	fr	20	y	2				
MR-80	161	162	0.5								
MR-80	162	163	0.5								
MR-80	163	164	0.5								
MR-80	164	165	0.5								
MR-80	165	166	1	ft	20	sc	45				A fine to med gr orange sand filled fault-this appears in other holes
MR-80	166	167	0.5	ft	40	sc	2				
MR-80	167	168	20								Broken and friable core
MR-80	168	169	0.5	ft	20	su	400	fi	y	30	Fault is clay filled with sand sized filling as well- looks like replacement
MR-80	169	170	0.5								
MR-80	170	171	0.5								30 cm bed at the base, low angled bedding vs the higher angled bedding in the coarser beds above
MR-80	171	172	0.5								
MR-80	172	173	0.5	ft;ft	20;40	sc;su	30;60				
MR-80	173	174	0.5	ft	15	y	1				
MR-80	174	175									
MR-80	175	176	0.5	fr	15	y	2				Core broken up
MR-80	176	177	0.5								
MR-80	177	178	0.5								
MR-80	178	179									
MR-80	179	180									
MR-80	180	181									
MR-80	181	182	0.5								
MR-80	182	183	0.5								red Clay drapes
MR-80	183	184	0.5								Clay drapes and silt beds
MR-80	184	185									Alternating silt/clay beds with coarse beds
MR-80	185	186	0.5								Clay drapes
MR-80	186	187	0.5								
MR-80	187	188	0.5	ft	20	su	25				
MR-80	188	189	0.5								
MR-80	189	190	0.5								
MR-80	190	191	0.5								
MR-80	191	192		fr	20	y	1				
MR-80	192	193	0.5								
MR-80	193	194									
MR-80	194	195	0.5								
MR-80	195	196									
MR-80	196	197									FP/basement contact at 196.23m, sharp-almost horizontal, FP has some granules slightly above contact but mainly just coarse ss
MR-82	32	33	3								Top of LzL starts at 32.5m
MR-82	33	34	3								
MR-82	34	35	16								
MR-82	35	36	21								
MR-82	36	37	0.5								
MR-82	37	38	2								Steep bedding
MR-82	38	39	0.5								Steep bedding

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-82	39	40	100	tm	m	P	Lr	c	w	f	m	c	3	1	0	0	0					2	s		Sr				t	i
MR-82	40	41	99	t	m	P	Lr	c	w	f	c	vc	13	4	0	0	0			Bn	d	1	s		Sr				t	i
MR-82	41	42	99	tm	m	C	Lr	c	w	f	m	c	5	2	0	0	0			Bk	d	1			Sr;S?					
MR-82	42	43	100	tm	m	P	Ld	c	w	f	m	vc	7	4	0	0	0			Bn	d	2	s		Sr;Sm			Pm	t	i
MR-82	43	44	100	tm	m	P	Ld	c	w	f	m	vc	8	3	0	0	0			Bk	d	1			Sr				t	i
MR-82	44	45	99	t	m	P	Ld	c	w	f	f	m	11	2	0	0	0			Bk	d	2		Gm	Sr	Fm			t	i
MR-82	45	46	99	tm	m	P,M	Lr	c	w	f	m	vc	10	4	0	0	0					1	s		Sr					
MR-82	46	47	90	t	m	C	Lr	c	w	f	m	m	3	1	0	0	0					1			Sr					
MR-82	47	48	100	tm	m	P	Lr	c	w	f	m	c	7	1	0	0	0			Bn	d	1	s		Sr				t	i
MR-82	48	49	100	tm	m	P	Ld	c	w	f	m	c	6	1	0	0	0	p	0.1			1			Sr	Fx				
MR-82	49	50	98	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0			Bn	d	2	s			Fr;Fm				
MR-82	50	51	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					1			Sr					
MR-82	51	52	100	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.3	Bn	d	1			Sr;Sm					
MR-82	52	53	100	t	m	P,Pu	Lr	c	w	f	f	m	1	0	0	0		g	0.3			3				Fm;Fr			t	f
MR-82	53	54	99	t	m	P,Pu	Lr	c	w	f	f	m	1	0	0	0	0	p	0.5	Bn	d	10				Fm;Fr			t	f
MR-82	54	55	100	tm	d	Pu,P	Ld	c	w	f	f	m	1	0	0	0	0	p	0.4			3				Fr;F?				
MR-82	55	56	94	tm	m	P	Ld	c	w	f	f	m	1	0	0	0	0	p	0.6			3				Fr			t	f
MR-82	56	57	100	tm	m	P	Ld	c	w	f	f	m	1	0	0	0	0	p	0.2	Bn	d	3				Fr;Fm				
MR-82	57	58	100	tm	p	P	Lr	c	w	f	f	m	1	0	0	0	0			Bn	d	6				Fm;Fr				
MR-82	58	59	100	t	m	P	Ld,Sr	c	w	f	m	m	1	0	0	0	0	g	0.2			1			Sm;Sr					
MR-82	59	60	100	tm	m	P,Pu	Ld	c	w	f	f	m	1	0	0	0	0	p	0.6			1				Fr;F?				
MR-82	60	61	100	tm	m	P	Ld,Sd	c	w	f	m	m	1	0	0	0	0	p	0.3	Bn	d	1			Sm;Sr					
MR-82	61	62	94	t	m	P	Lr	c	w	f	f	m	1	0	0	0	0			Bn	d	2				Fm;Fr				
MR-82	62	63	100	t	m	C	Lr	c	w	f	f	m	1	0	0	0	0	g	0.2			1				Fm;Fr				
MR-82	63	64	100	t	p	C	Lr,Sr	c	w	f	f	m	1	0	0	0	0	d	0.2	Bn	d	1				Fr				
MR-82	64	65	100	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0	p	0.4			4				Fr;Fm				
MR-82	65	66	100	t	m	C	Lr	c	w	f	f	m	1	0	0	0	0	p	0.6			3				Fr				
MR-82	66	67	100	tm	m	C	Ld	c	w	f	f	m	1	0	0	0	0			Bn	d	3				Fr;Fm				
MR-82	67	68	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	g	0.3			2			Sr					
MR-82	68	69	80	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					5			Sr					
MR-82	69	70	75	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.1	Bn	d	2			Sr;Sm					
MR-82	70	71	77	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.5	Bn	d	2			Sr					
MR-82	71	72	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0			Bn	d	1			Sr					
MR-82	72	73	100	tm	p	C	U	c	w	f	m	m	1	0	0	0	0					4			Sr					
MR-82	73	74	98	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.3			8			Sr				t	f
MR-82	74	75	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	g	0.2			3			Sr;Sm					
MR-82	75	76	100	t	m	C	Lr	c	w	f	f	m	1	0	0	0	0	p	0.1			10				Fm;Fr			t	f
MR-82	76	77	98	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					4			Sr				t	f
MR-82	77	78	98	t	m	P	Lr,Sr	c	w	f	m	m	1	0	0	0	0			Bn	d	1			Sr					
MR-82	78	79	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.4	Bn	d	3			Sr					
MR-82	79	80	93	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.3	Bn	d	3			Sr;Sm				t	f
MR-82	80	81	98	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					2			Sr	Fm			t	f
MR-82	81	82	99	t	p	C	Lr	f	w	f	m	m	1	0	0	0	0	p	0.2			3			Sr					
MR-82	82	83	95	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2	Bn	d	3			Sr					
MR-82	83	84	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	w	0.5	Bn	d	5			Sr				t	f
MR-82	84	85	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0			Bn	d	2			Sr;Sm					
MR-82	85	86	89	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0	p	0.2	Bk	d	2				Fr				
MR-82	86	87	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0			Bn	d	2			Sr				t	f
MR-82	87	88	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					3			Sm;Sr				t	f
MR-82	88	89	99	t	m	C	Lr	c	w	f	m	m	1	0	0	3	0	d	0.2	Bn	d	2			Sx;Sm		Mh			
MR-82	89	90	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.4			2			Sr					
MR-82	90	91	100	t	m	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2			2			Sr					
MR-82	91	92	100	tm	m	C	Lr	c	w	f	m	m	1	0	0	0	0					3			Sr	Fm				
MR-82	92	93	100	tm	m	C	Lr	c	w	f	m	m	1	0	0	0	0			Bn	d	1			Sr					
MR-82	93	94	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.5	Bn	d	3			Sr					
MR-82	94	95	92	t	m	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2	Bk	d	4			Sr					
MR-82	95	96	99	tm	m	P	Ld	c	w	f	m	m	1	0	0	0	0					3			Sr;Sm					
MR-82	96	97	100	t	m	C	Lr	c	w	f	f	m	1	0	0	0	0					2				Fr			t	f
MR-82	97	98	100	t	p	C	Lr,Sr	c	w	f	f	m	1	0	0	0	0					2				Fr;Fm				
MR-82	98	99	100	t	p	C	Lr,Sr	c	w	f	f	m	1	0	0	0	0					2				Fr			t	f
MR-82	99	100	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.4			5			Sr	Fm				
MR-82	100	101	94	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0	p	0.2			2				Fm;Fr			t	f
MR-82	101	102	100	t	m	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	p	0.3			2			Sr;Sm					
MR-82	102	103	100	tm	m	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.2	Bk	d	2			Sr					

Hole ID	Depth From (m)	Depth To (m)	Hydro- carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-82	39	40	5								Steep bedding
MR-82	40	41	10								steep bedding
MR-82	41	42									
MR-82	42	43	3								Steep bedding
MR-82	43	44	7								Steep bedding
MR-82	44	45	1								60 cm fine gr bed
MR-82	45	46									Steep bedding
MR-82	46	47									
MR-82	47	48	6								
MR-82	48	49									LzL/MF contact at 48.7m, contact marked by last pebbles and granule layer, below is fine grained x/bed above is med-coarse gr x-beds
MR-82	49	50									
MR-82	50	51									
MR-82	51	52									
MR-82	52	53	0.5								
MR-82	53	54	0.5								
MR-82	54	55									
MR-82	55	56	0.5								
MR-82	56	57									
MR-82	57	58									
MR-82	58	59									
MR-82	59	60									
MR-82	60	61									
MR-82	61	62									
MR-82	62	63									
MR-82	63	64									
MR-82	64	65									
MR-82	65	66									
MR-82	66	67									
MR-82	67	68									
MR-82	68	69									
MR-82	69	70									
MR-82	70	71									
MR-82	71	72									
MR-82	72	73									
MR-82	73	74	0.5								
MR-82	74	75									
MR-82	75	76	0.5								
MR-82	76	77	0.5								
MR-82	77	78									
MR-82	78	79									
MR-82	79	80	0.5								
MR-82	80	81	0.5	fr	70	py					
MR-82	81	82		fr	45	py					
MR-82	82	83									
MR-82	83	84	0.5								
MR-82	84	85									
MR-82	85	86									
MR-82	86	87	0.5								
MR-82	87	88	0.5								
MR-82	88	89									
MR-82	89	90									
MR-82	90	91									
MR-82	91	92									
MR-82	92	93									
MR-82	93	94									
MR-82	94	95		fr	70	py					
MR-82	95	96									
MR-82	96	97	0.5								
MR-82	97	98									
MR-82	98	99	0.5	fr	60	py					
MR-82	99	100									
MR-82	100	101	0.5	fd	30	n	0				
MR-82	101	102									
MR-82	102	103									

Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-82	103	104	100	t	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					11			Sr				t	f
MR-82	104	105	100	tm	m	C	Lr	c	w	f	m	m	1	0	0	0	0					16			Sr	Fm			t	f
MR-82	105	106	100	tm	p	C	Lr	c	w	f	f	m	1	0	0	0	0					15				Fr			t	f
MR-82	106	107	75	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					15			Sr;Sm				t	f
MR-82	107	108	97	t	p	C	U	c	w	f	m	m	1	0	0	0	0					20			Sr;Sm				t	f
MR-82	108	109	100	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.2			10			Sr				t	f
MR-82	109	110	99	t	p	C	Lr	c	w	f	m	m	1	0	0	0	0					22			Sr				t	f
MR-82	110	111	100	tm	p	C	Lr	c	w	f	f	m	1	0	0	0	0					5				Fr			t	f
MR-82	111	112	100	tm	m	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.2			4			Sr	Fm			t	f
MR-82	112	113	100	tm	p	C	Lr	c	w	f	m	m	1	0	0	0	0	w	0.5			6			Sm;Sr				t	f
MR-82	113	114	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2			3			Sm;Sr					
MR-82	114	115	100	tm	m	C	Lr	c	w	f	f	m	1	0	0	0	0	p	0.2			1				Fr;Fm				
MR-82	115	116	100	t	m	P	Lr	c	w	f	m	m	1	0	0	0	0	p	0.2			3			Sm;Sr					
MR-82	116	117	100	tm	m	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	w	0.4			2			Sr					
MR-82	117	118	100	tm	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	p	0.1			2			Sr				t	f
MR-82	118	119	98	tm	m	C	Lr	c	w	f	f	m	1	0	0	0	0	d	0.5			4			Sr	Fm			t	f
MR-82	119	120	100	t	m	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	p	0.5			1			Sr				t	i
MR-82	120	121	100	t	m	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					3			Sr					
MR-82	121	122	93	tm	p	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	d	0.1	Bn	d	1			Sr					
MR-82	122	123	99	tm	m	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	d	0.1	Bn	d	1			Sr;S?					
MR-82	123	124	100	t	m	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					2			Sr;Sm					
MR-82	124	125	98	tm	m	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0	d	0.1			2			Sr;Sm					
MR-82	125	126	99	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0					3			Sr;Sm				t	f
MR-82	126	127	100	t	m	C	Lr,Sr	c	w	f	m	m	1	0	0	0	0					5			Sr				t	f
MR-82	127	128	100	t	p	C	Lr	c	w	f	f	m	1	0	0	0	0			Bn	d	3				Fr			t	f
MR-82	128	129	99	t	m	C	Lr	c	w	f	m	m	2	0	0	0	0	p	0.2	Bn	d	2			Sr				t	f
MR-82	129	130	99	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0	d	0.5	Bn	d	2			Sr	Fm			t	f
MR-82	130	131	99	t	m	C	Lr	c	w	f	m	m	1	0	0	1	0			Bn	d	6			Sr				t	f
MR-82	131	132	100	t	m	C	Lr	c	w	f	m	m	1	0	0	0	0	p	0.1			1			Sr					
MR-82	132	133	99	t	m	C	Lr	c	w	f	m	m	3	0	0	0	0					4			Sr				t	f
MR-82	133	134	99	tm	m	C	Lr	c	w	f	m	m	5	1	0	0	0	d	0.3	Bn	d	4		G1	Sr;Sm				t	f
MR-82	134	135	100	tm	m	P	Lr	c	w	f	m	m	5	1	0	0	0	w	1.3			2		G1	Sr				t	f
MR-82	135	136	98	t	m	C	Lr	c	w	f	m	c	4	1	0	0	0					3			Sr				t	f
MR-82	136	137	97	t	m	C	Lr	c	w	f	m	c	2	0	0	0	0			Bn	d	10			Sr				t;t	f;i
MR-82	137	138	100	t	p	C	Lr	c	w	f	m	m	4	1	0	0	0					3			Sm;Sr				t	f
MR-82	138	139	99	t	p	C	Lr	c	w	f	m	c	2	0	0	0	0	p	0.3	Bn	d	6			Sr				t	f
MR-82	139	140	80	tm	m	P	Lr,Sr	c	w	f	m	m	4	1	0	0	0	d	0.3			5			Sr;Sm				t	f
MR-82	140	141	100	tm	p	C	Lr	c	w	f	m	m	2	0	0	0	0					2			Sr				t	f
MR-82	141	142	100	t	m	P	Lr,Sr	c	w	f	m	c	2	0	0	0	0	p	0.4			2			Sr					
MR-82	142	143	90	tm	m	P	Lr	c	w	f	m	c	2	0	1	0	0					3			Sr	Fm	Mh			
MR-82	143	144	97	tm	m	P	Lr	c	w	f	m	c	2	0	0	0	0					2	r		Sr;Sm					
MR-82	144	145	97	tm	m	P	Lr	c	w	f	m	c	2	0	0	0	0					3			Sr;S?					
MR-82	145	146	55	tm	m	P	Lr	c	w	f	m	c	2	0	0	0	0					2			Sr					
MR-82	146	147	99	t	p	C	Lr,Sr	c	w	f	m	m	6	1	0	0	0					2			Sr;Sm					
MR-82	147	148	100	t	p	C	Lr	c	w	f	m	m	5	1	0	0	0					1			Sr;Sl					
MR-82	148	149	100	tm	m	C	Lr	c	w	f	m	c	3	1	0	0	0	w	1.2			3	r		Sm					
MR-82	149	150	100	tm	m	C	Lr	c	w	f	m	m	1	0	0	0	0					7			Sr;Sm				t	f
MR-82	150	151	100	tm	d	M	Lr	c	w	f	m	c	3	1	0	4	0					2			Sr		Mh		t	f
MR-82	151	152	87	m	d	M,Pu	Ld	c	w	s	c	vc	5	3	0	7	0	w	3	M	d	2			S?		Mh			
MR-82	152	153	100	m	d	M	Ld	c	w	f	m	vc	5	4	1	2	0								S?;Sx		Mh			
MR-82	153	154	80	m	m	P	Lr	c	w	f	m	c	4	1	0	0	0					3			Sr;Sm					
MR-82	154	155	99	a	m	Pu,C	M	c	w	m	c	g	22	5	0	0	0					1			Sm					
MR-82	155	156	100	a	p	C,P,Gn	M	c	w	m	c	vc	10	2	0	0	0					2			Sm					
MR-82	156	157	100	a	m	P,Pu,Gn	M,F	c	w	m	c	vc	4	1	0	0	0					2			Sm					
MR-82	157	158	100	a	m	Pu,P	M	c	w	m	c	vc	3	1	0	0	0					5			Sm					
MR-82	158	159	100	a	p	P,Pu	Lr,Sr	c	w	m	c	c	2	0	0	0	0					2			Sm				t	f
MR-82	159	160	100	a	m	P,Pu	M	c	w	m	c	c	2	0	0	0	0					3			Sm					
MR-82	160	161	99	a	m	Pu,P	B	c	w	m	c	vc	2	0	0	0	0					3			Sm				t	f
MR-82	161	162	100	a	m	M,P	M	c	w	m	c	vc	11	2	0	0	0					3			Sm				t	f
MR-82	162	163	99	a	d	M,P	M	c	w	m	c	vc	5	3	0	0	0					4			Sm				t	f
MR-82	163	164	90	a	m	Pu,P	M,Sr	c	w	m	c	vc	7	2	0	0	0					3			Sm				t	f
MR-82	164	165	100	a	m	P,Pu	B,Sr	c	w	m	c	c	5	1	0	0	0					3			S?					
MR-82	165	166	100	a	m	P,Pu	B,Sr	c	w	m	c	c	4	1	0	0	0					4			Sm;S?				t	f
MR-82	166	167	99	a	d	Pu	Sd	c	w	m	c	vc	5	3	0	0	0					3			Sm					

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct.FF Cement	Tec. Struct.FF Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-82	103	104	1								
MR-82	104	105	0.5	fd	30	qd	1				
MR-82	105	106	0.5	ft	20	qd	1				
MR-82	106	107	0.5	ft	25	qd	1				Broken core
MR-82	107	108	1	ft	25	qd	1				Broken core
MR-82	108	109	0.5								
MR-82	109	110	1	ft	10	su	25				
MR-82	110	111	0.5								
MR-82	111	112	0.5								
MR-82	112	113	0.5								
MR-82	113	114		fr	70	py					
MR-82	114	115									
MR-82	115	116									
MR-82	116	117									
MR-82	117	118	0.5								
MR-82	118	119	0.5								
MR-82	119	120	1								
MR-82	120	121									
MR-82	121	122									
MR-82	122	123									
MR-82	123	124									
MR-82	124	125									
MR-82	125	126	0.5								
MR-82	126	127	0.5								
MR-82	127	128	0.5								
MR-82	128	129	0.5								
MR-82	129	130	0.5								
MR-82	130	131	0.5								
MR-82	131	132									
MR-82	132	133	0.5	fd	20	n	0				
MR-82	133	134	0.5								
MR-82	134	135	0.5								
MR-82	135	136	0.5								
MR-82	136	137	1								
MR-82	137	138	0.5								
MR-82	138	139	0.5								
MR-82	139	140	0.5								
MR-82	140	141	0.5								
MR-82	141	142									
MR-82	142	143									
MR-82	143	144									Ground down core
MR-82	144	145									Ground up core
MR-82	145	146									Broken up core
MR-82	146	147									
MR-82	147	148									
MR-82	148	149									
MR-82	149	150	0.5								
MR-82	150	151	0.5								Has red silt beds at base, possible MF/FP contact at 150.78m with coarse beds and silt beds below and fine/med gr beds above
MR-82	151	152									hematized silt beds between med-coarse beds-looks randomly distributed-reworked FP?
MR-82	152	153									Abundant clay drapes, looks like reworked FP-but can see some bedding
MR-82	153	154		fd	10	n	0				MF/FP contact at 153.92m, sharp contact-below coarse gr directly above is med gr
MR-82	154	155									
MR-82	155	156									
MR-82	156	157									
MR-82	157	158		fr	30	y	1				
MR-82	158	159	0.5								
MR-82	159	160									
MR-82	160	161	0.5								
MR-82	161	162	0.5								
MR-82	162	163	0.5								
MR-82	163	164	0.5								
MR-82	164	165									
MR-82	165	166	0.5								
MR-82	166	167		fr	20	s	1				

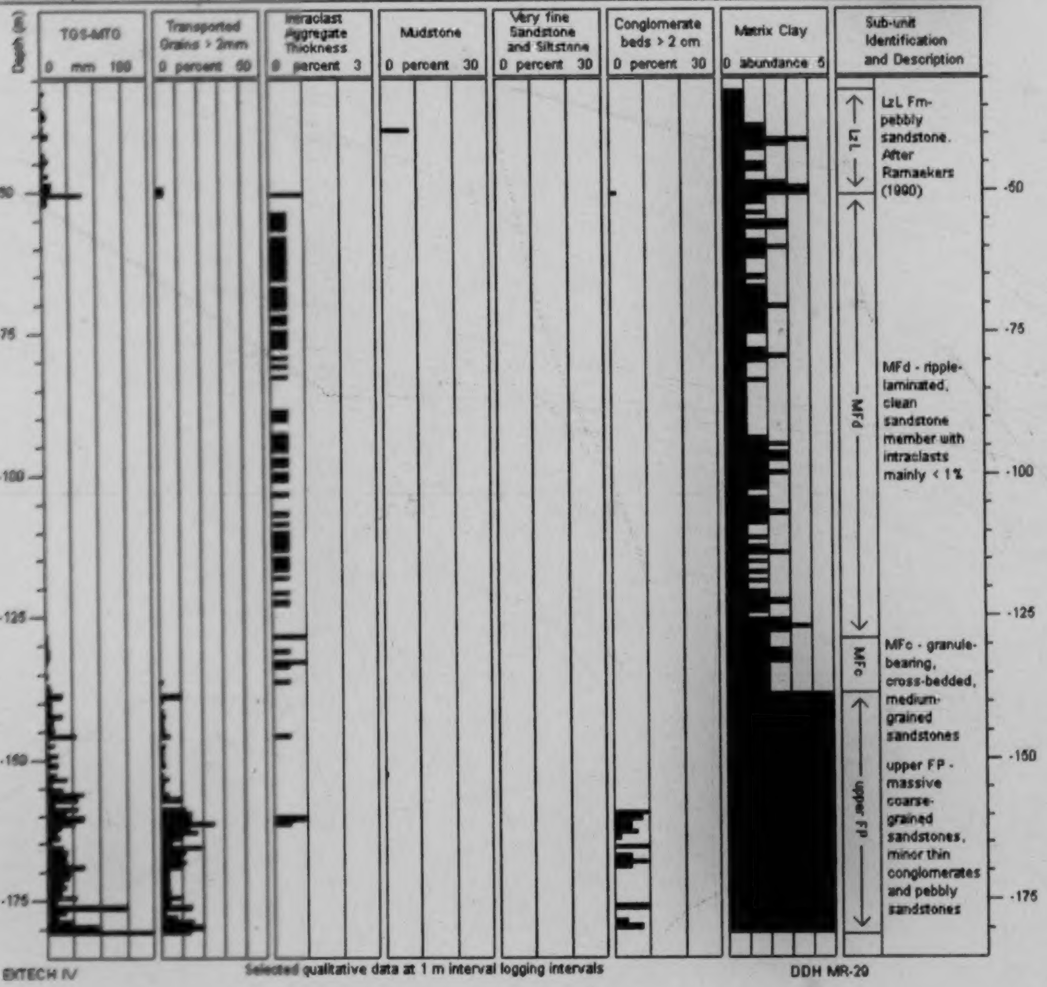
Hole ID	Depth From (m)	Depth To (m)	Recov. (%)	Matrix Clay	Dark-ness	Colour	Pattern	IC Friab.	IC Silic.	TGS 10	TGS 50	TGS 90	MTG	%>2 mm	%M	%F	%C > 2cm Thick	Intracl. Type	Intracl. %	Acc. Min. Colour	Acc. Min. Distrib.	Fract. per m	SSS	PSS G Grain Size	PSS S Grain Size	PSS F Grain Size	PSS M Grain Size	PSS P Grain Size	Hydro-carbon Type	Hydro-carbon Distrib.
MR-82	167	168	100	a	m	Pu,P	B,Lr	c	w	m	c	vc	38	5	0	0	0					2			Sm				t	f
MR-82	168	169	100	a	m	P,Pu	M,Sr	c	w	m	c	vc	12	2	0	0	0					3			S?					
MR-82	169	170	92	a	d	M,P	M	c	w	f	c	c	58	3	0	0	0					2			Sm	Fm				
MR-82	170	171	100	a	m	M,P	M,Sr	c	w	m	c	vc	29	3	0	0	0					2			Sm					
MR-82	171	172	99	a	m	Pu,P,Gn	M	c	w	m	c	vc	10	3	0	0	0					3			Sm				t	f
MR-82	172	173	99	a	m	M,P	M,Sr	c	w	m	c	vc	7	3	0	0	0					2			Sm				t	f
MR-82	173	174	99	a	m	P,Pu,Gn	M,Sr	c	w	m	c	vc	18	4	0	0	0					2			Sm					
MR-82	174	175	100	a	m	P,Pu	M,Sr	c	w	m	c	g	45	10	0	0	0					1			Sm			Pm		
MR-82	175	176	100	a	m	P,M,Gn	B	c	w	f	c	vc	55	7	0	0	0					3			Sm	F?		Pm	t	f
MR-82	176	177	100	a	d	M,Gn	B	c	w	m	c	g	40	16	0	0	0					1			Sm			Pm		
MR-82	177	178	100	a	m	P,Gn	B	c	w	m	c	g	15	12	0	0	5					2		Gm	Sm			Pm	t,t	t,f
MR-82	178	179	100	a	m	M,P	M	c	w	m	c	g	11	9	0	0	2					2			S?			Pm		
MR-82	179	180	99	a	m	M	B	c	w	m	c	pe	12	25	0	0	15					5		Gm	Sm			Pm	t,t	t,f
MR-82	180	181	100	a	d	M,Pu,P	M	c	w	f	c	c	8	5	0	0	0					2			Sm				t	f
MR-82	181	182	87	a	d	M,P	B	c	w	m	c	g	15	7	0	0	2	p	2.5			5		Gm	Sm			Pm	t	f
MR-82	182	183	100	a	d	Pu,P	B	c	w	m	c	c	48	6	0	0	0	d	0.3			2			Sm			Pm		
MR-82	183	184	100	a	d	M,Pu,Gn	M	c	w	f	c	g	14	18	0	0	14					3		Gm	Sm				t	f
MR-82	184	185	99	a	d	M,P	B	c	w	f	c	g	20	10	0	0	11					2		Gm	Sm				t	f
MR-82	185	186	99	a	d	M,O	B	c	w	s	m	c	12	2	0	16	0					4			Sm		Mh		t	f
MR-82	186	187	100	a	d	M,O	M	c	w	m	c	pe	40	30	0	1	22					1		Gm	Sm			Pm		
MR-82	187	188	92	a	d	M,P,Gn	M	c	w	m	c	vc	12	3	0	0	0					1			Sm				t	f
MR-82	188	189	100	a	m	Pu,P	M	c	w	m	c	g	5	5	0	0	0					2			Sm					
MR-82	189	190	100	a	p	P,Pu,Gn	M	c	w	m	c	g	12	12	0	0	0					2			S?				t	f
MR-82	190	191	88	a	m	Gn,Pu,P	M	c	w	m	c	g	65	11	0	0	0					1		G1	Sm					
MR-82	191	192	100	a	m	Pu,Gn	M	c	w	m	c	c	10	4	0	0	0					2			Sm				t	f
MR-82	192	193	100	a	p	P,Gn	B	c	w	m	c	vc	15	3	0	0	0					2			S?					
MR-82	193	194	80	a	p	P,Pu,Gn	B	c	w	m	c	g	28	12	0	0	2					6			Sm			Pm	t	f
MR-82	194	195	100	a	d	Pu,P	B	c	w	f	m	c	3	1	0	0	0					7			Sm				t	f
MR-82	195	196	100	a	m	P,Pu,Gn	B	c	w	f	m	c	5	1	0	0	0					11			S?				t	f
MR-82	196	197	100	a	m	P,Pu	B	c	w	f	m	m	1	0	0	0	0					2			S?				t	f
MR-82	197	198	100	a	m	Pu,P,Gn	B	c	w	f	m	c	15	2	0	0	0					5			Sm					

Hole ID	Depth From (m)	Depth To (m)	Hydro-carbon Satur.	Tec. Struct. Type	Tec. Struct. Angle	Tec. Struct. FF Cement	Tec. Struct. FF . Thick.	Repl. Type	Repl. New Min.	Repl. %	Remarks
MR-82	167	168	0.5								
MR-82	168	169									
MR-82	169	170									
MR-82	170	171									
MR-82	171	172	0.5	fr	30	h	1				
MR-82	172	173	0.5								
MR-82	173	174									
MR-82	174	175									
MR-82	175	176	0.5								
MR-82	176	177									
MR-82	177	178	0.5								
MR-82	178	179									
MR-82	179	180	1								
MR-82	180	181	0.5								Clay drapes
MR-82	181	182	2								
MR-82	182	183									
MR-82	183	184	0.5								
MR-82	184	185	0.5								Clay drapes
MR-82	185	186	0.5								
MR-82	186	187									
MR-82	187	188	0.2								
MR-82	188	189									
MR-82	189	190	0.5								
MR-82	190	191									
MR-82	191	192	0.5								
MR-82	192	193									
MR-82	193	194	0.5								
MR-82	194	195	0.5								
MR-82	195	196	0.5								
MR-82	196	197	0.5								
MR-82	197	198									FF/basement contact at 197.75m; angled contact sharp; FF coarse gr ss above contact

APPENDIX 3 – Drill core logs

Diamond Drill Hole Identification: **MR 29** **EXTECH IV**

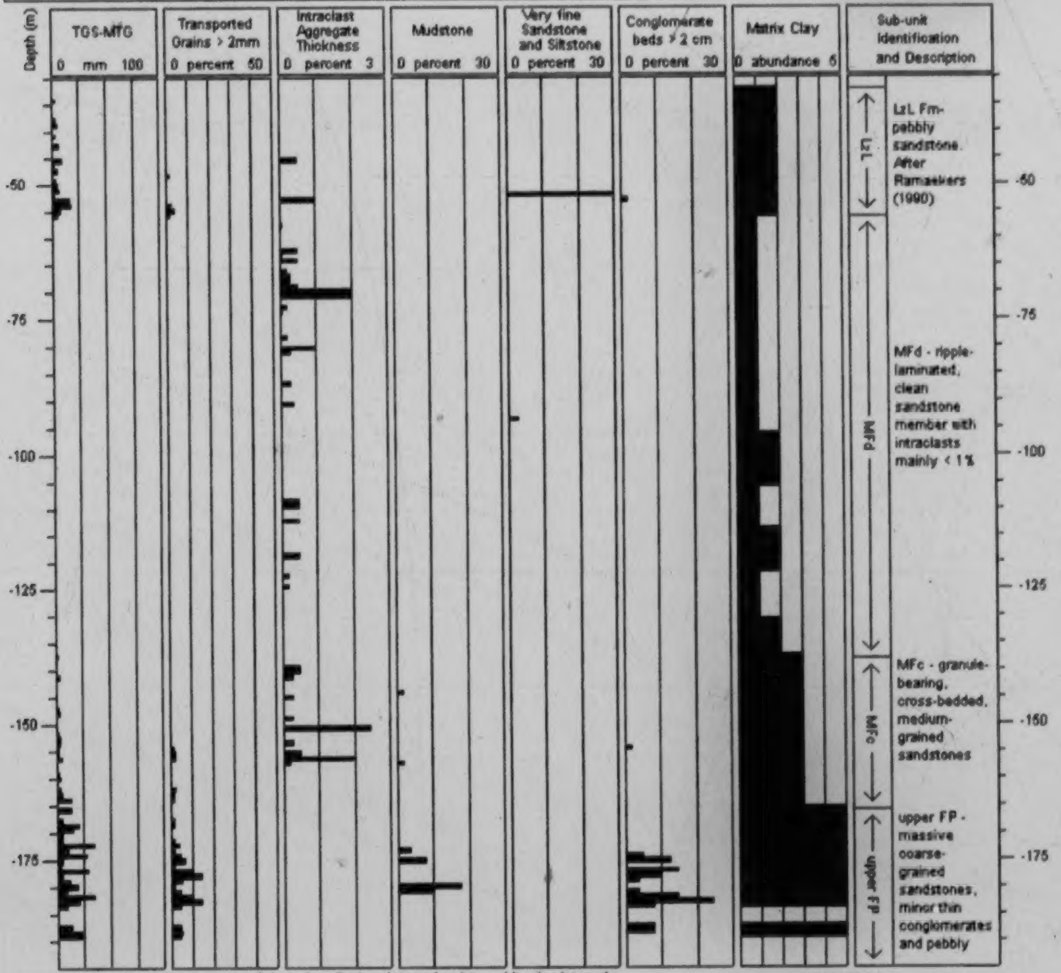
Longitude (83)	-110.6590696
Latitude (83)	58.20440640
Unconformity	180.9m
Depth of Hole	236.8m
Orientation	270/-60
Drilling year	1987
Property	Maybelle
Compilation date	21/10/02
Data Compilation	Barb Kupsch



Selected qualitative data at 1 m interval logging intervals

Diamond Drill Hole Identification: **MR-34** **EXTECH IV**

Longitude (83)	-110.6587956
Latitude (83)	58.20432920
Unconformity	190.6m
Depth of Hole	227.4m
Orientaion	270/-70
Drilling year	1988
Property	Maybelle
Compilation date	10/21/02
Data Compilation	Barb Kupsch

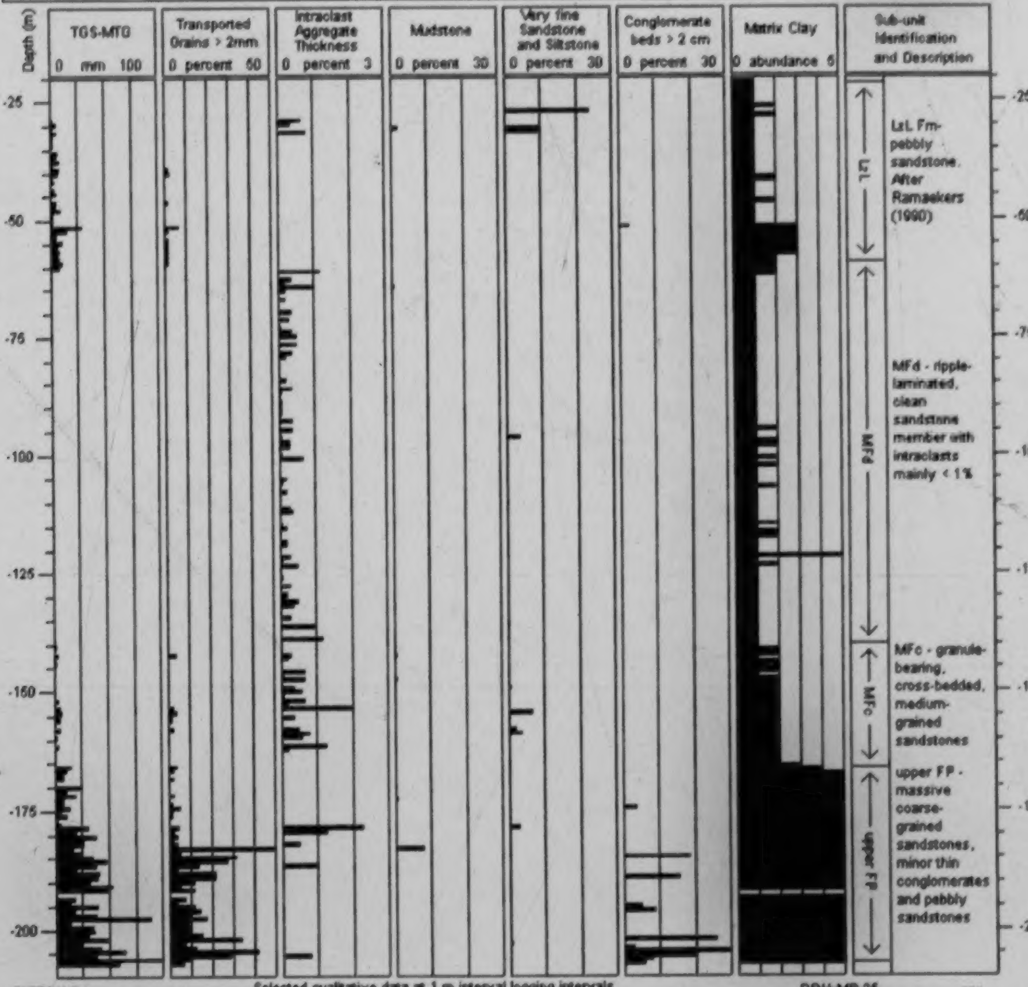


EXTECH IV Selected qualitative data at 1 m interval logging intervals DDH MR-34

Diamond Drill Hole Identification: **MR-35**

EXTECH IV

Longitude (83)	-110.8655300
Latitude (83)	58.22062100
Unconformity	207.2m
Depth of Hole	272.3m
Orientaion	270/-60
Drilling year	1986
Property	Maybelle
Compilation date	10/21/02
Data Compilation	Barb Kupsch

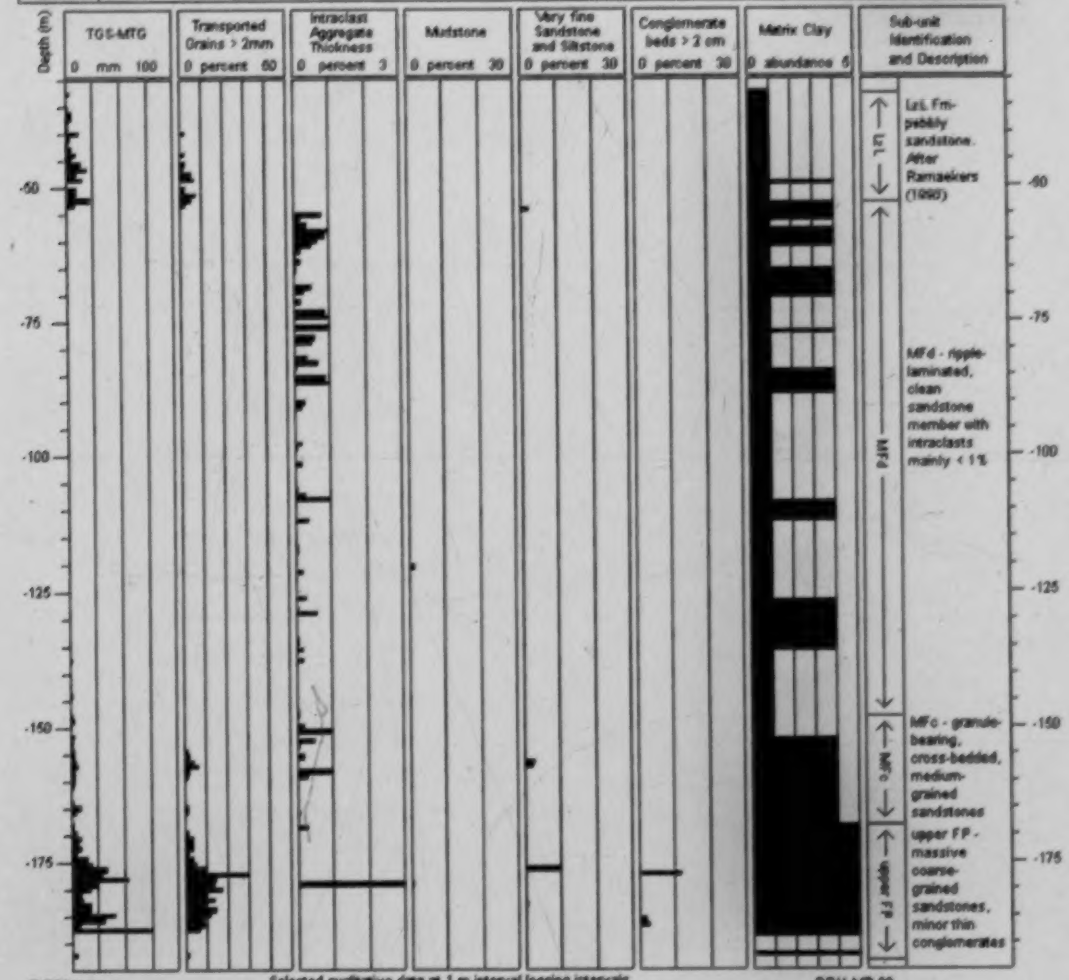


EXTECH IV　Selected qualitative data at 1 m interval logging intervals　DDH MR-35

Diamond Drill Hole Identification: **MR.39**

EXTECH IV

Longitude (83)	-110.6586802
Latitude (83)	58.20433720
Unconformity	193.4m
Depth of Hole	237.3m
Orientaion	270/-75
Drilling year	1999
Property	Maybelle
Compilation date	10/21/02
Data Compilation	Barb Kupsch

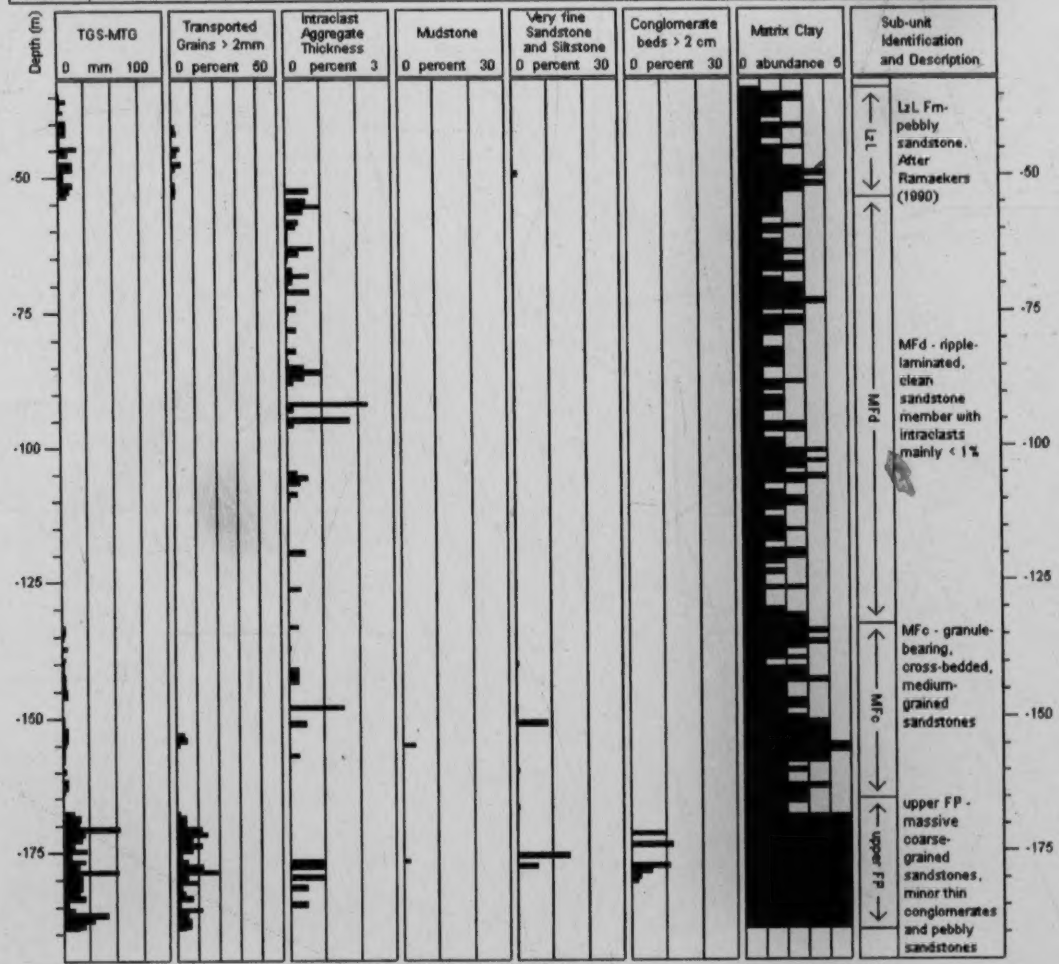


EXTECH IV   Selected qualitative data at 1 m interval logging intervals   DDH MR-39

Diamond Drill Hole Identification: **MR-40**

EXTECH IV

Longitude (83)	-110.6586802
Latitude (83)	58.20433726
Unconformity	189.5m
Depth of Hole	260.1m
Orientaion	270/-80
Drilling year	1988
Property	Maybelle
Compilation date	10/21/02
Data Compilation	Barb Kupsch



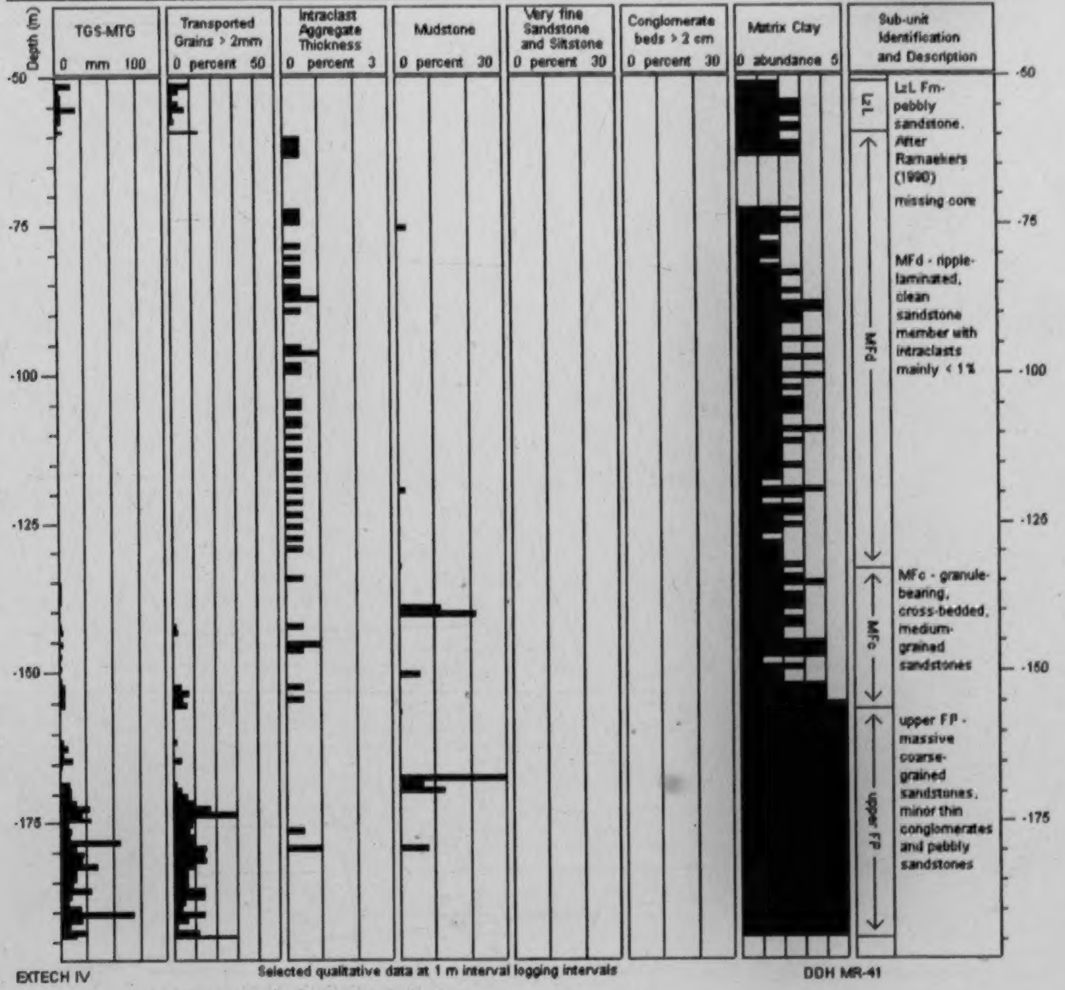
EXTECH IV

Selected qualitative data at 1 m interval logging intervals

DDH MR-40

Diamond Drill Hole Identification: **MR-41** **EXTECH IV**

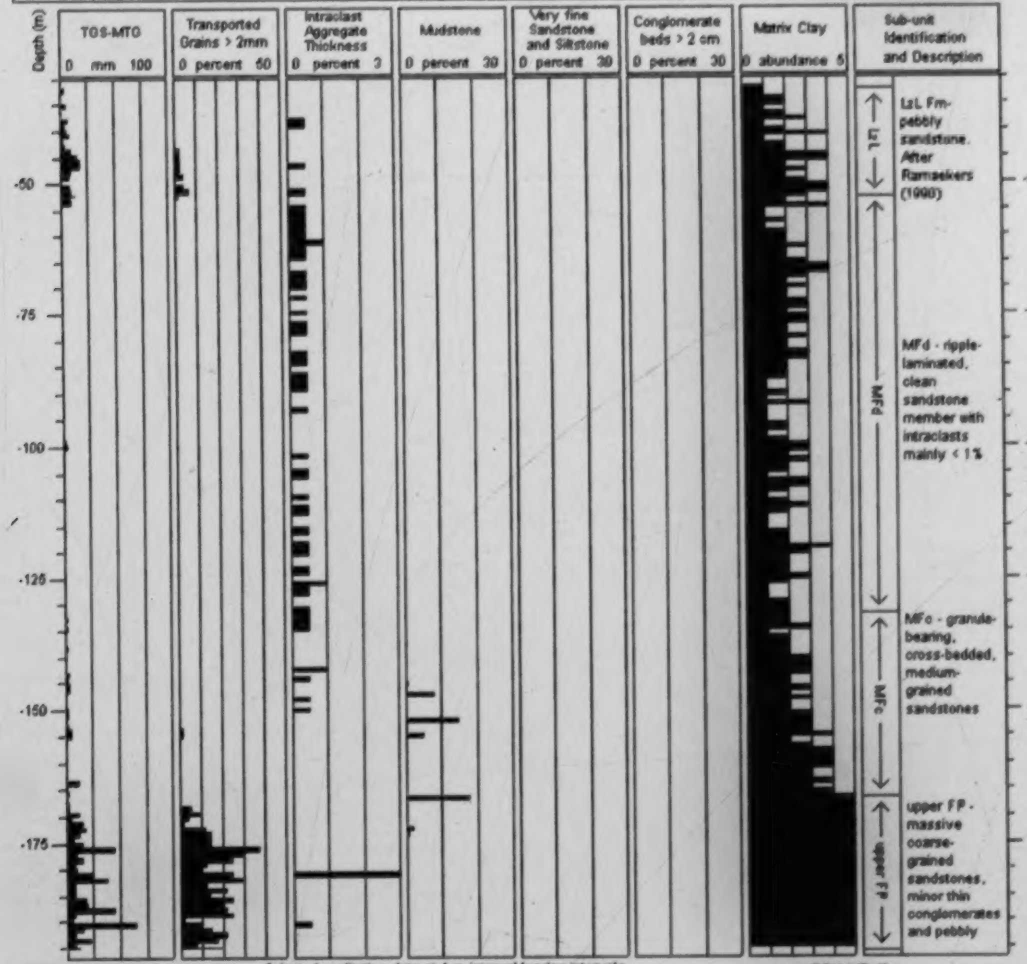
Longitude (83)	-110.6598864
Latitude (83)	58.20339549
Unconformity	194.4m
Depth of Hole	220.0m
Orientaion	-/-90
Drilling year	1988
Property	Maybelle
Compilation date	10/21/02
Data Compilation	Barb Kupsch



EXTECH IV Selected qualitative data at 1 m interval logging intervals DDH MR-41

Diamond Drill Hole Identification: **MR-43** **EXTECH IV**

Longitude (83)	-110.6586802
Latitude (83)	58.20433728
Unconformity	185.8m
Depth of Hole	240.1m
Orientaion	278/-75.5
Drilling year	1988
Property	Maybelle
Compilation date	10/21/02
Data Compilation	Barb Kupsch



LzL Fm- pebbly sandstone. After Ramaekers (1990)

MFd - ripple-laminated, clean sandstone member with intraclasts mainly < 1%

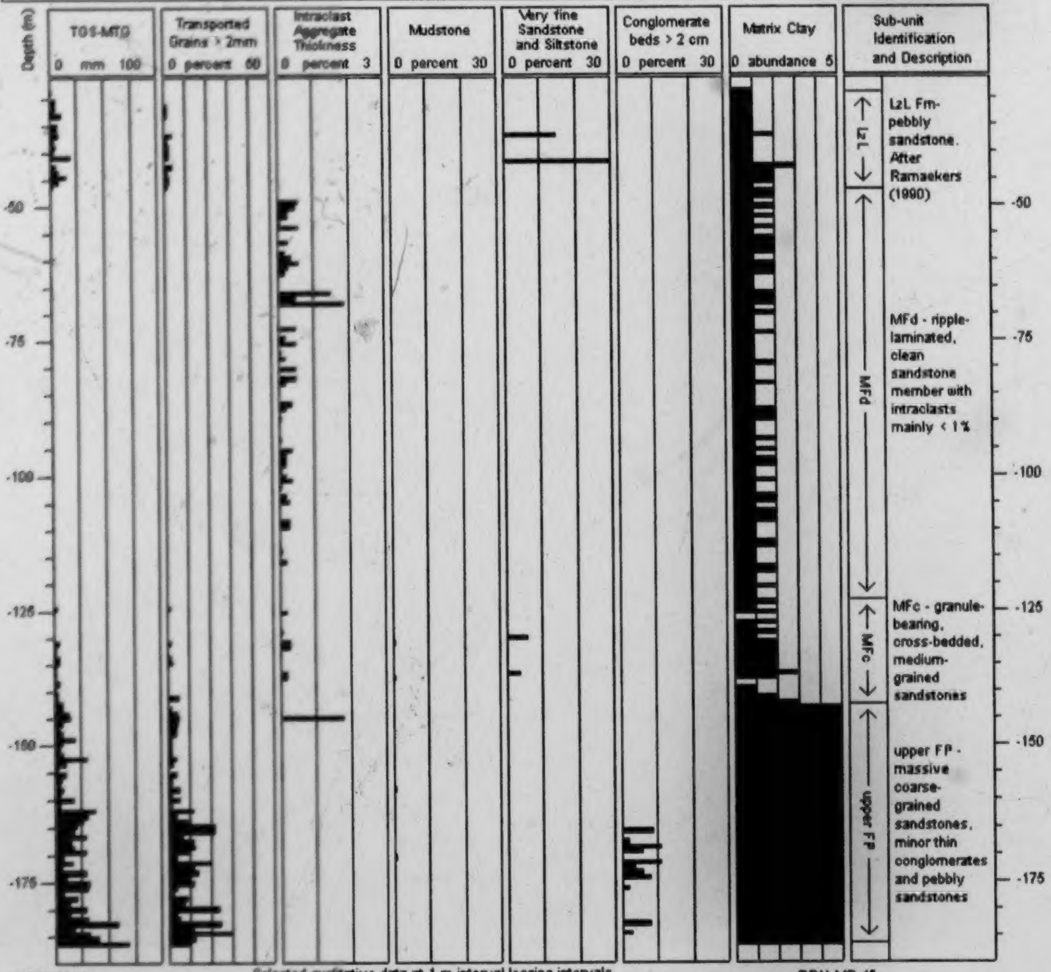
MFc - granule-bearing, cross-bedded, medium-grained sandstones

upper FP - massive coarse-grained sandstones, minor thin conglomerates and pebbly

EXTECH IV Selected qualitative data at 1 m interval logging intervals DDH MR-43

Diamond Drill Hole Identification: **MR-45** **EXTECH IV**

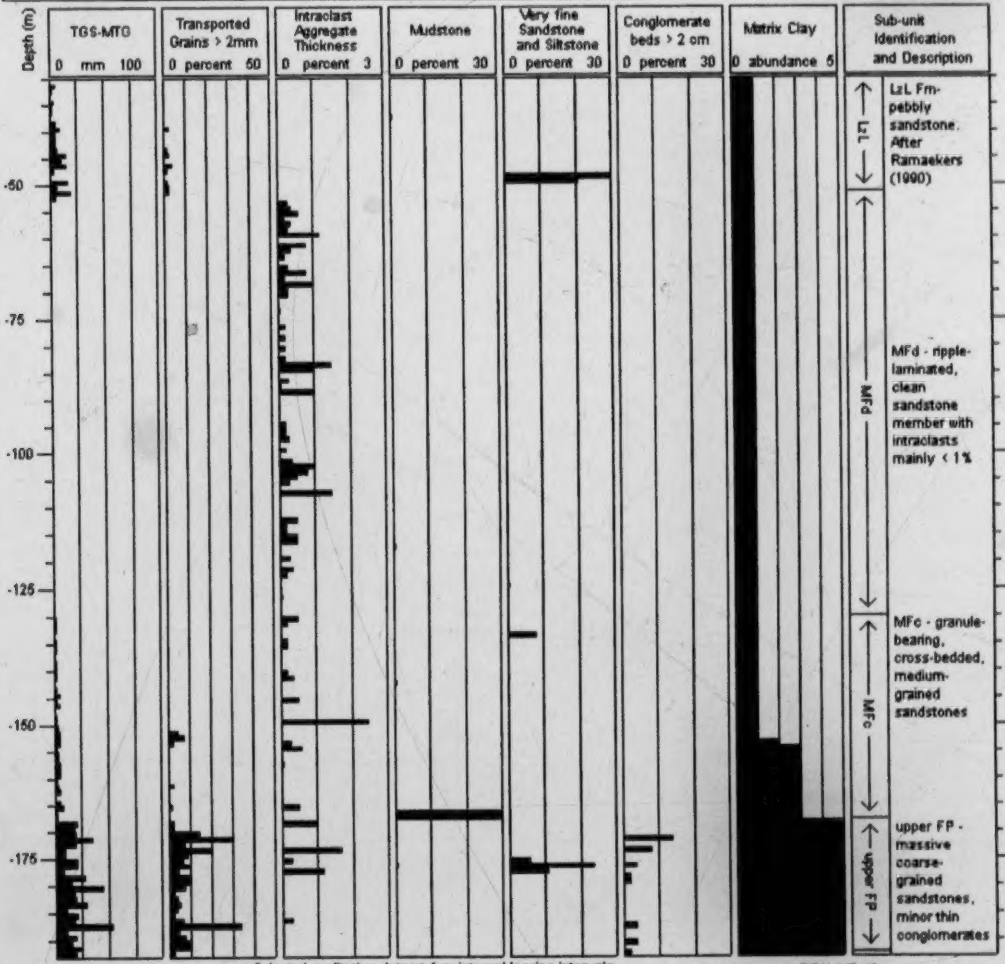
Longitude (83)	-110.6613214
Latitude (83)	59.20428601
Unconformity	186.5m
Depth of Hole	244.3m
Orientaion	90/-70
Drilling year	1998
Property	Maybelle
Compilation date	10/21/02
Data Compilation	Barb Kupsch



EXTECH IV Selected qualitative data at 1 m interval logging intervals DDH MR-45

Diamond Drill Hole Identification: **MR-46** **EXTECH IV**

Longitude (83)	-110.66
Latitude (83)	58.20
Unconformity	192.08m
Depth of Hole	260m
Orientaion	-/-90
Drilling year	1988
Property	Maybelle
Compilation date	07/10/03
Data Compilation	Barb Kupsch

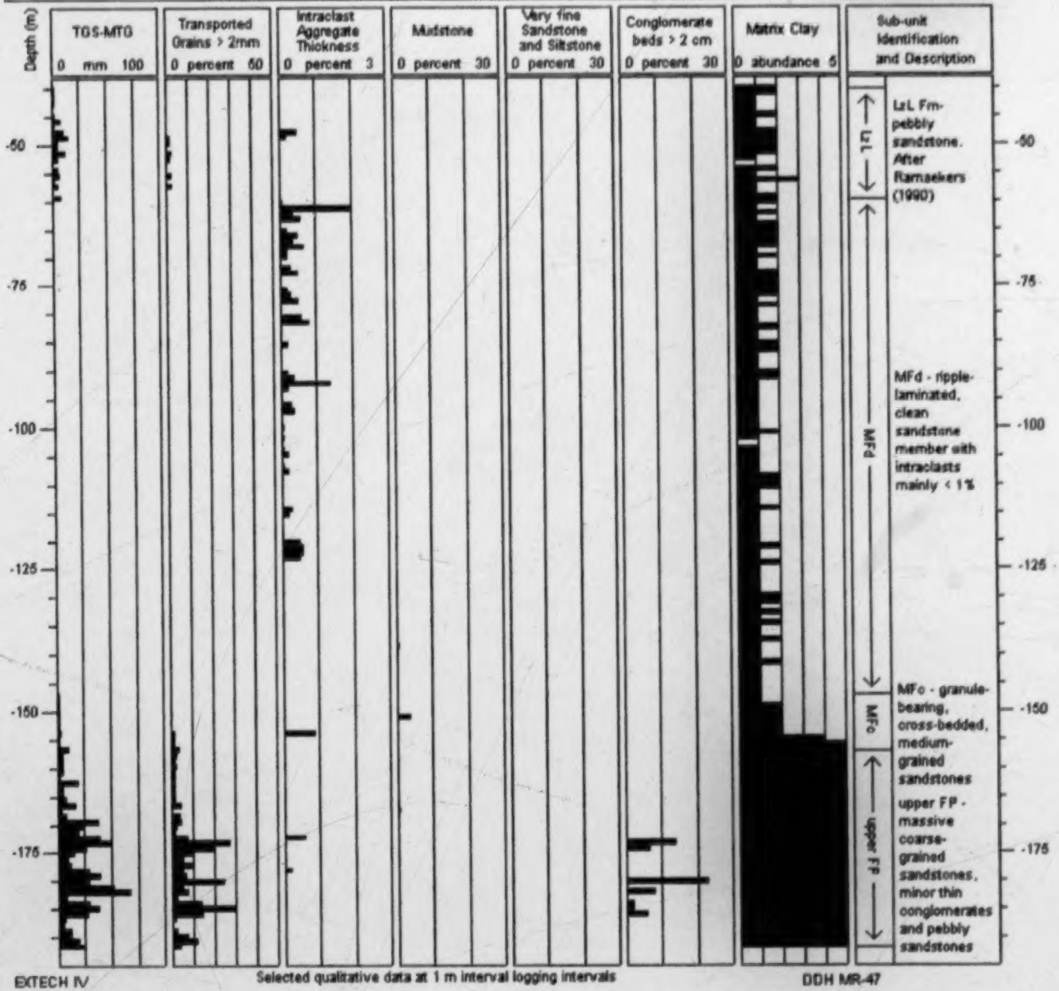


EXTECH IV Selected qualitative data at 1 m interval logging intervals DDH MR-46

Diamond Drill Hole Identification: **MR-47**

EXTECH IV

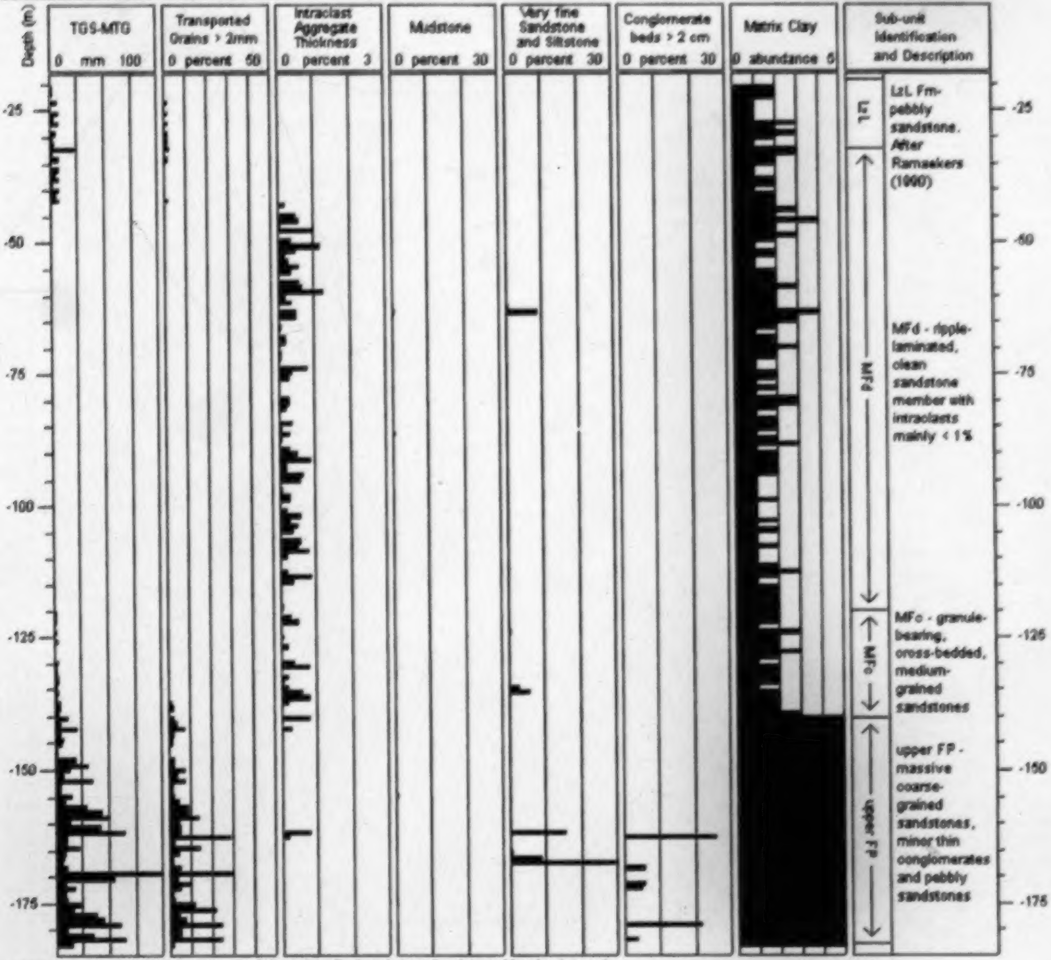
Longitude (83)	-110.0598864
Latitude (83)	58.20339549
Unconformity	191.7m
Depth of Hole	251.1m
Orientaion	90/-75
Drilling year	1988
Property	Maybelle
Compilation date	10/21/02
Data Compilation	Barb Kupsch



EXTECH IV — Selected qualitative data at 1 m interval logging intervals — DDH MR-47

Diamond Drill Hole Identification: **MR-48** **EXTECH IV**

Longitude (83)	-110.6612062
Latitude (83)	58.20546420
Unconformity	182.8m
Depth of Hole	216.4m
Orientaion	90/-75
Drilling year	1988
Property	Maybelle
Compilation date	10/21/02
Data Compilation	Barb Kupsch



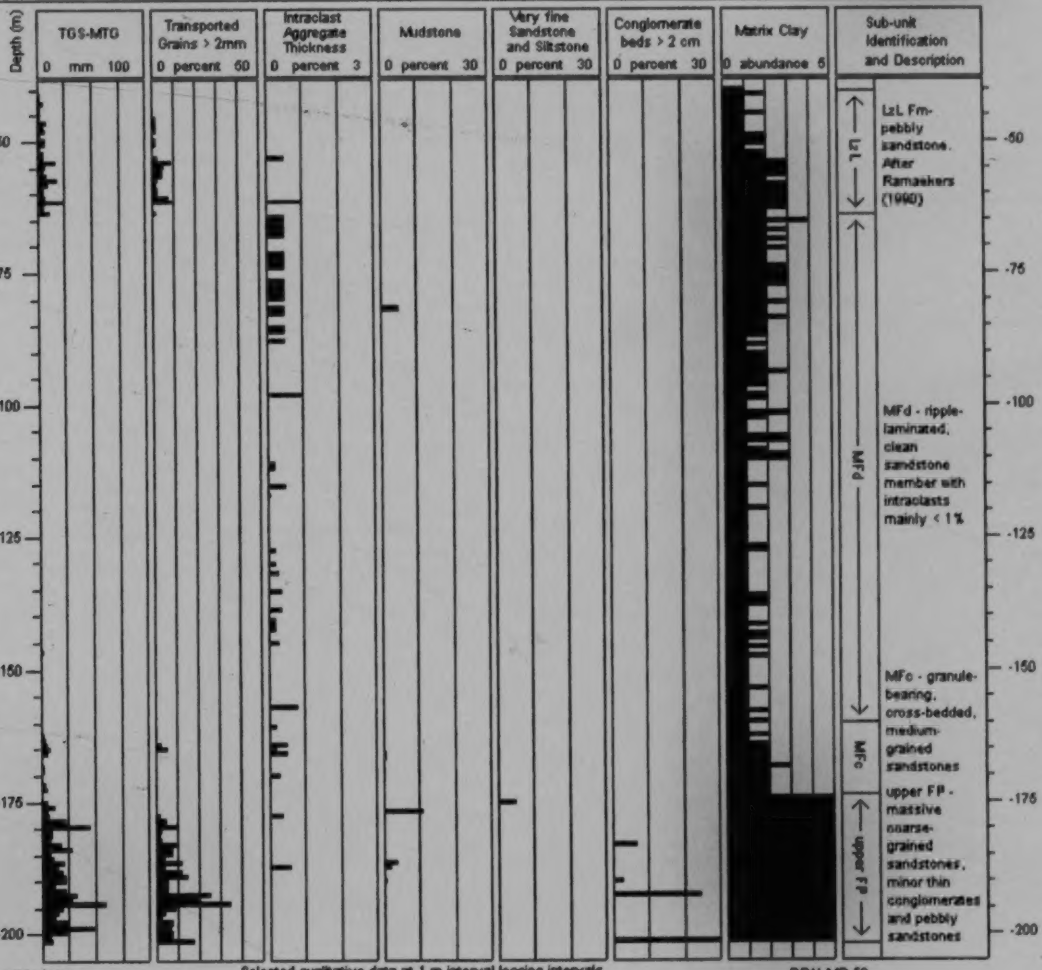
EXTECH IV

Selected qualitative data at 1 m interval logging intervals

DDH MR-48

Diamond Drill Hole Identification: **MR-50** **EXTECH IV**

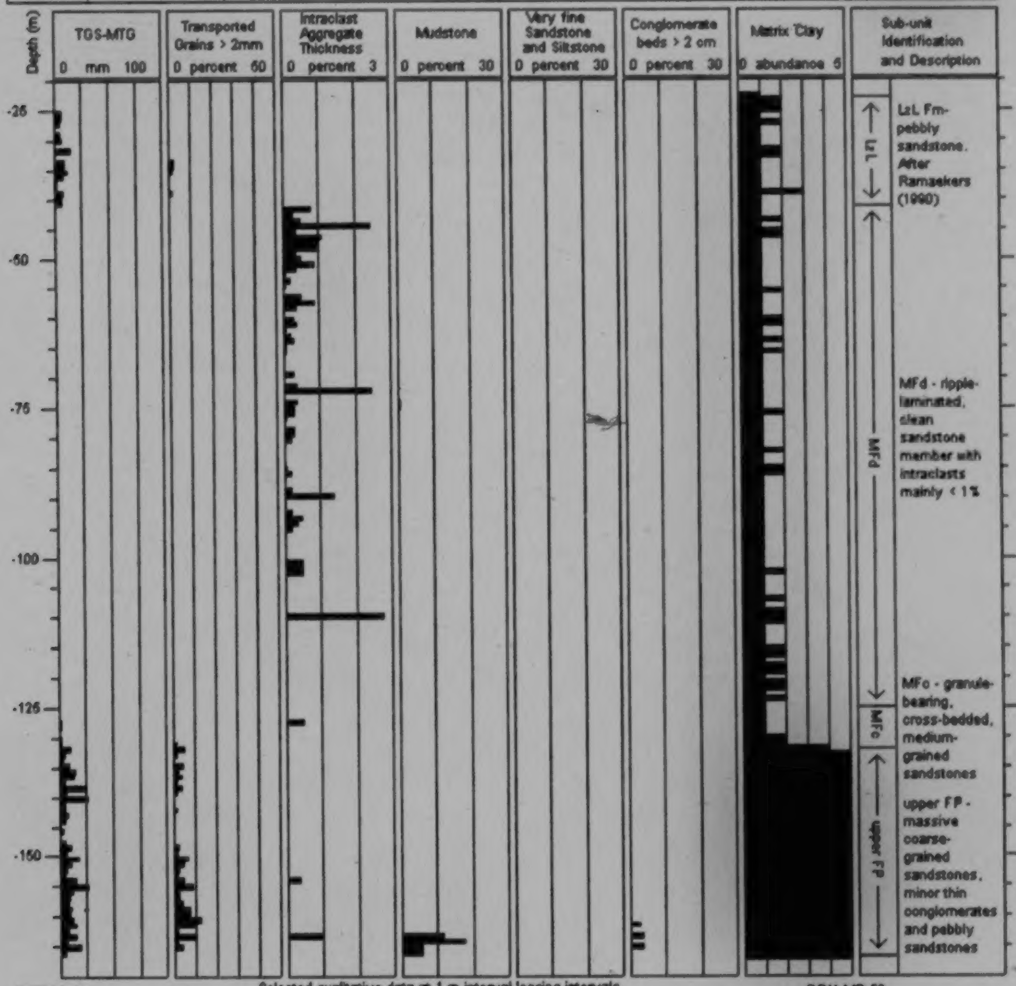
Longitude (83)	-110.6590790
Latitude (83)	58.20351323
Unconformity	201.8m
Depth of Hole	248.5m
Orientaion	340/-60
Drilling year	1988
Property	Maybelle
Compilation date	10/21/02
Data Compilation	Barb Kupsch



EXTECH IV Selected qualitative data at 1 m interval logging intervals DDH MR-60

Diamond Drill Hole Identification: **MR-53** **EXTECH IV**

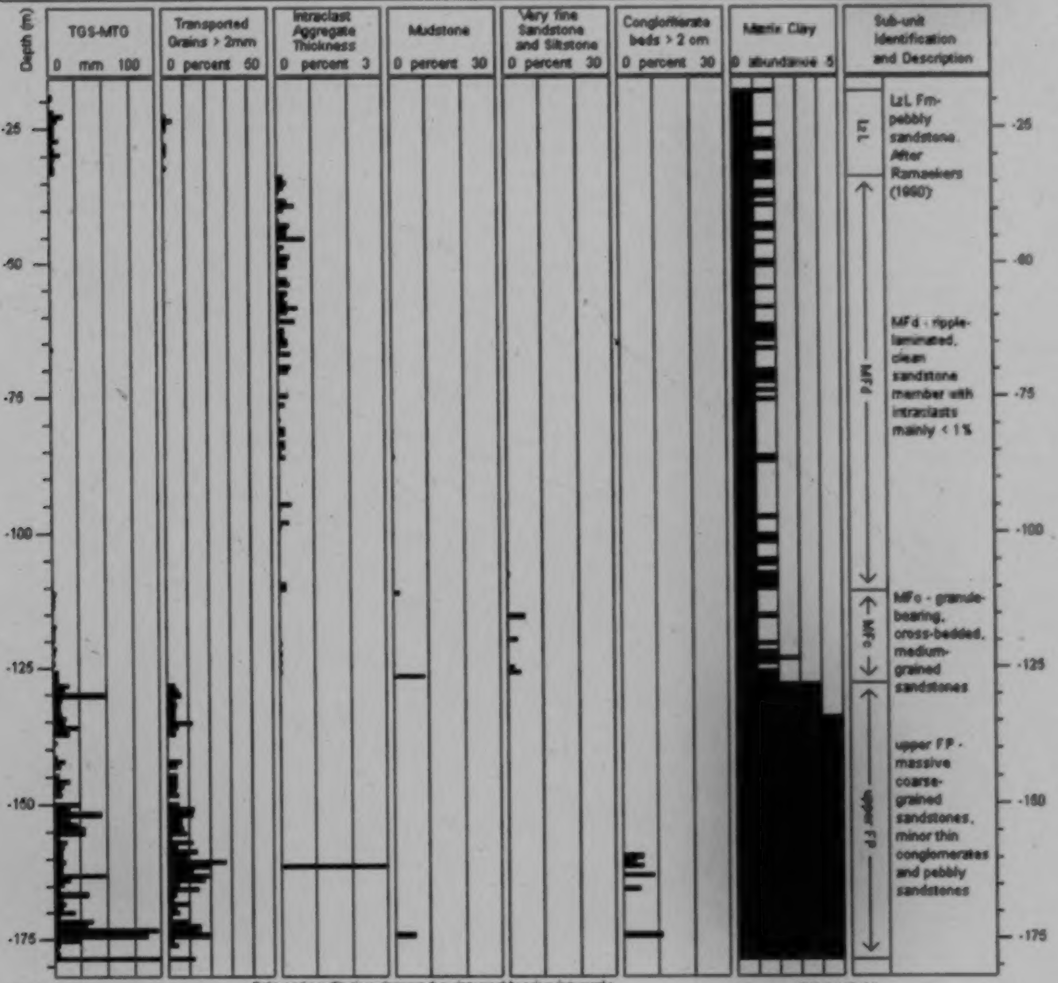
Longitude (83)	-110.6588356
Latitude (83)	58.19797963
Unconformity	166.8m
Depth of Hole	211.7m
Orientaion	90/-67
Drilling year	1988
Property	Maybelle
Compilation date	10/21/02
Data Compilation	Barb Kupsch



EXTECH IV Selected qualitative data at 1 m interval logging intervals DDH MR-53

Diamond Drill Hole Identification: **MR 60** **EXTECH IV**

Longitude (83)	-110.6646901
Latitude (83)	58.20463601
Unconformity	178.9m
Depth of Hole	216.8m
Orientaion	90/-60
Drilling year	1980
Property	Maybelle
Compilation date	10/21/02
Data Compilation	Barb Kupsch



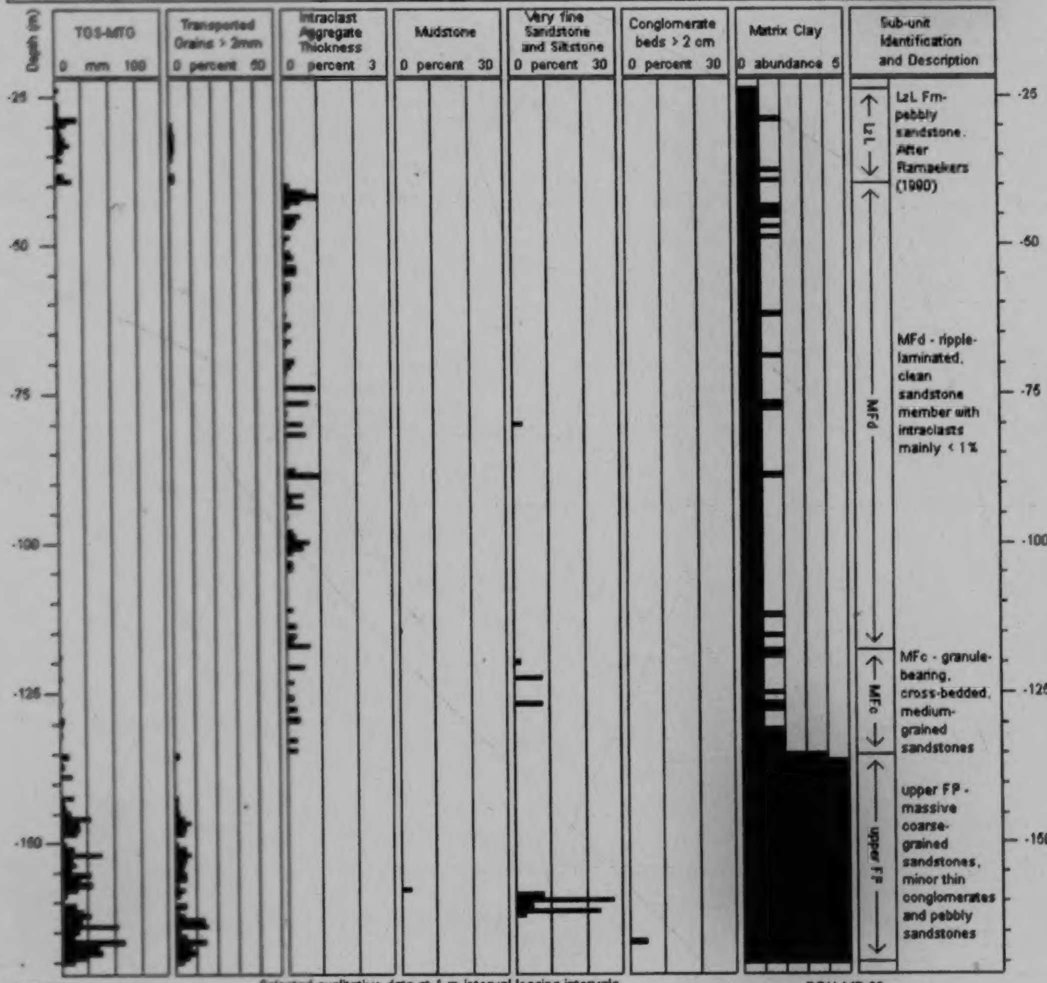
EXTECH IV

Selected qualitative data at 1 m interval logging intervals

DDH MR-60

Diamond Drill Hole Identification: **MR-80** **EXTECH IV**

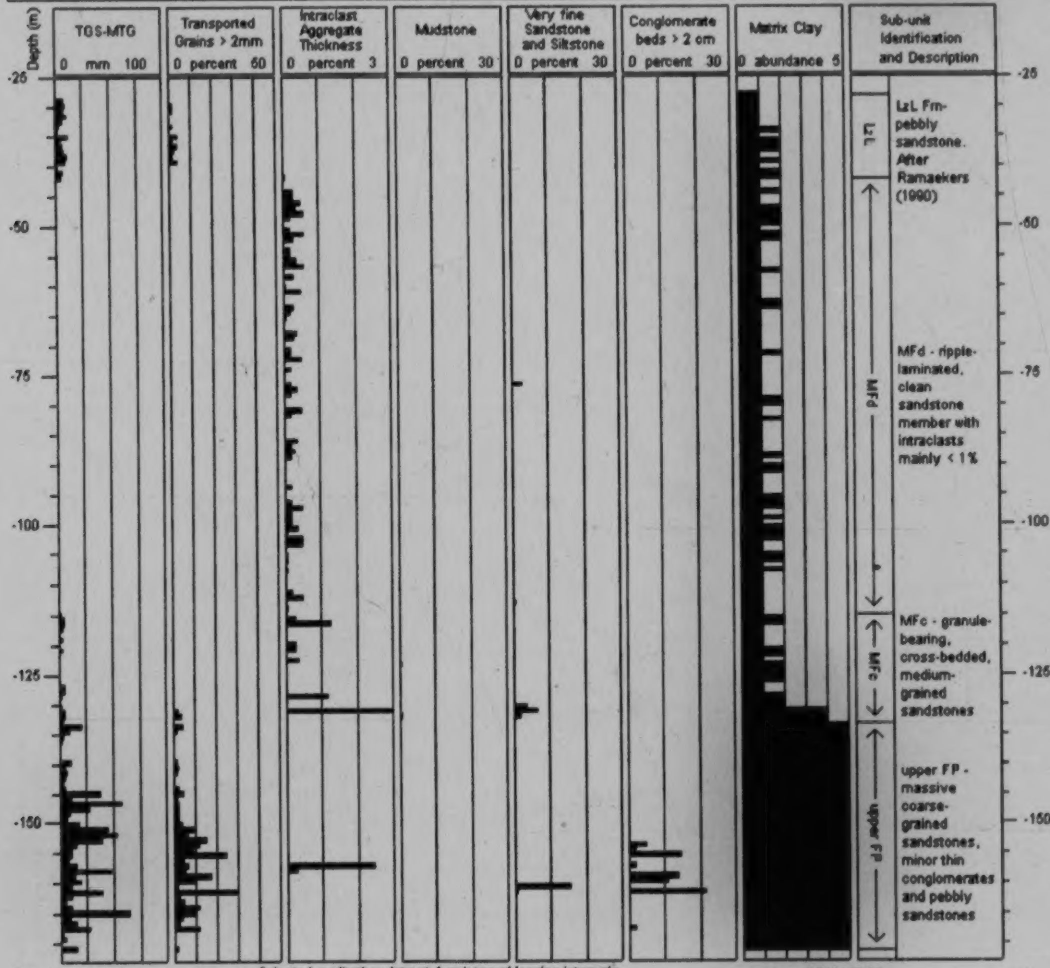
Longitude (83)	-110.6553303
Latitude (83)	58.19612889
Unconformity	189.9m
Depth of Hole	222.5m
Orientation	257/-60
Drilling year	1980
Property	Maybelle
Compilation date	10/21/02
Data Compilation	Barb Kupsch



EXTECH IV Selected qualitative data at 1 m interval logging intervals DDH MR-80

Diamond Drill Hole Identification: **MR-82** **EXTECH IV**

Longitude (83)	-110.6583499
Latitude (83)	58.19904629
Unconformity	171.3m
Depth of Hole	225.2m
Orientaion	267/-60
Drilling year	1990
Property	Maybelle
Compilation date	10/21/02
Data Compilation	Barb Kupsch



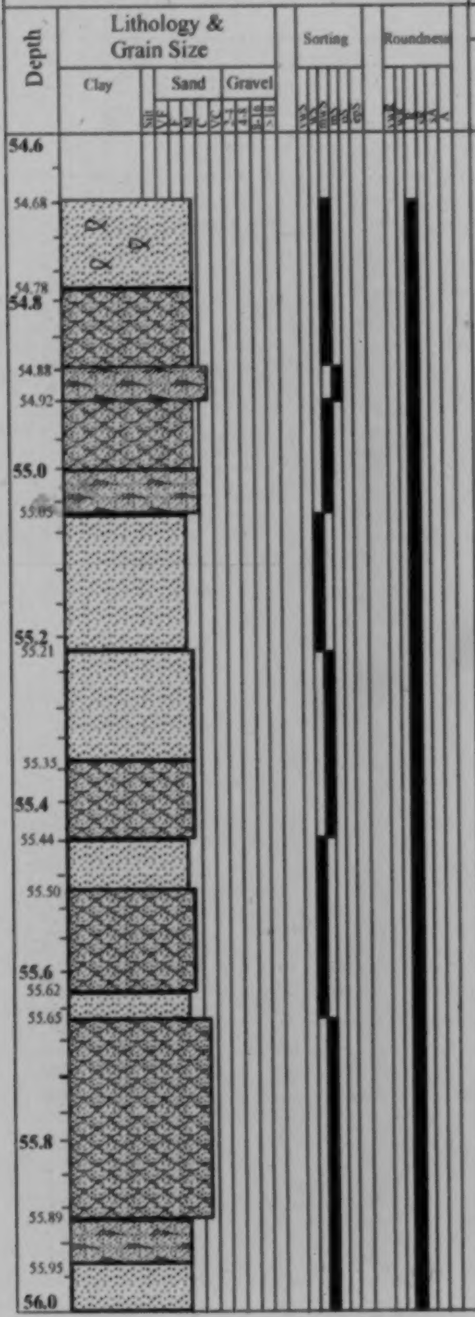
EXTECH IV Selected qualitative data at 1 m interval logging intervals DDH MR-82

APPENDIX 4 – Detailed stratigraphic logs

Facies	Facies code and symbol		Sedimentary structures
Gm	▨	Matrix-supported conglomerate	Horizontal bedding or massive
Pm	▨	Pebbly sandstone	Horizontal bedding or massive
Sh	▨	Sandstone, very fine to coarse, may be pebbly	Horizontal lamination, parting or streaming lineation
Sl	▨	Sandstone, very fine to coarse, may be pebbly	Low-angle (<15°) cross-beds
Sx	▨	Sandstone, fine to very coarse, may be pebbly	Cross-beds, greater than 5 cm thick
Sr	▨	Sandstone, very fine to coarse	Ripple cross-lamination
Sm	▨	Sandstone, fine to very coarse	Massive or faint lamination
So	▨	Sandstone, fine to very coarse	Overturned and convoluted bedding
Fsm	▨	Silt, mud	Fine lamination

CLASTIC CORE LOGGING FORM

Location: Maybelle River
Date: January 2003
Drill hole: MR-35
Reported Core Interval: 54.6 - 56.0 m
Fm./Strat. Unit Lazenby Lake Formation

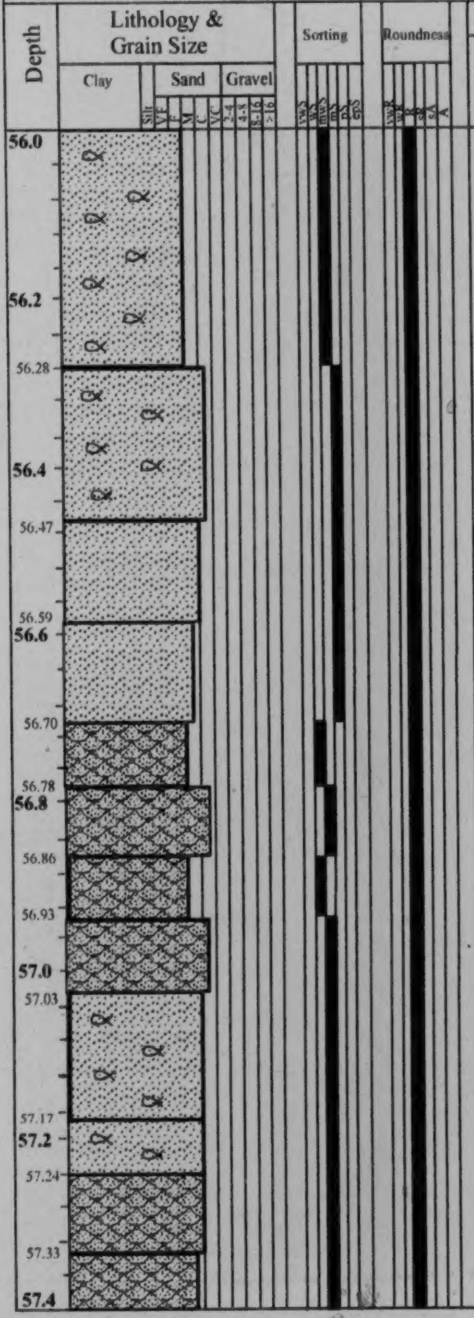

Depth
Lithology & Grain Size
Clay
Silt
Sand
Gravel
Sorting
Roundness
54.6
54.68
54.78
54.8
54.88
54.92
55.0
55.05
55.2
55.21
55.35
55.4
55.44
55.50
55.6
55.62
55.65
55.8
55.89
55.95
56.0

Clast % Qtz	Clast % Rock frags.	MTG	% Pebbles	Comments
100		5	1	f.u. foresets from f. to c. gr. ss with overturned bedding at top.
		4	0	
		3	0	Fine to m. gr. ss, f.u. foresets, floating granules.
		3	0	
100		6	1	
		1	0	
		3	0	Fine to m. gr. ss. looks massive, floating granules.
		3	0	Fine to m. gr. ss, f.u. foresets, floating granules.
		1	0	
		1	0	Fine to m. gr. ss, f.u. foresets, floating granules.
		1	0	
		3	0	Fine to v.c. gr. ss, f.u. foresets, some floating granules.
		3	0	

CLASTIC CORE LOGGING FORM

Location: Maybelle River | Date: January 2003 | Drill hole: MR-35

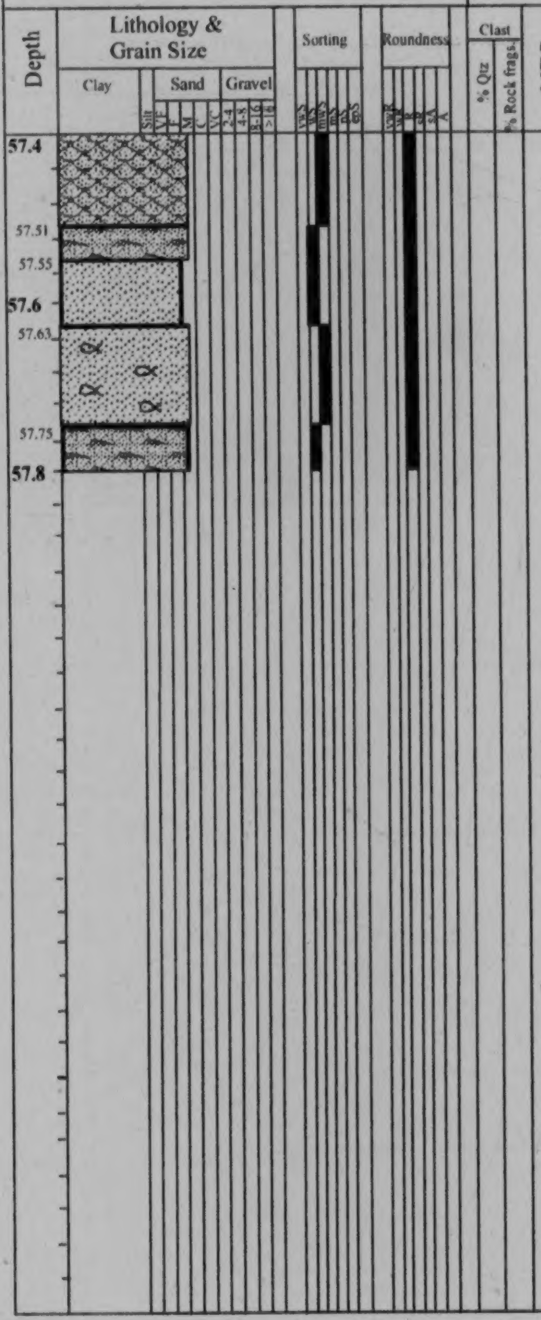
Reported Core Interval: 56.0 - 57.4 m | Fm./Strat. Unit Lazenby Lake Formation


Depth
Lithology & Grain Size
Clay
Silt
Sand
Gravel
VF
F
M
C
VC
2-4
4-8
8-16
>16
Sorting
Roundness
56.0
56.2
56.28
56.4
56.47
56.59
56.6
56.70
56.78
56.8
56.86
56.93
57.0
57.03
57.17
57.2
57.24
57.33
57.4

Depth	% Qtz	% Rock frags.	MTG	% Pebbles	Comments
56.0	100		6	2	Fine to v.c. gr. ss, overturned bedding, massive where not overturned, some floating granules.
56.28			4	0	
56.47			3	0	Fine to v.c. gr. ss, looks massive, floating granules.
56.59			3	0	
56.70	100		7	1	Fine to c. gr. ss, f.u. foresets, floating granules.
56.78	100		5	1	
56.86			2	0	
56.93			2	0	
57.03			3	0	Fine to v.c. gr. ss, overturned bedding, x-bedding where not overturned, some floating granules.
57.17			3	0	
57.24			4	0	Fine to c. gr. ss, f.u. foresets, floating granules, overturned bedding at top..
57.33			3	0	Fine to c. gr. ss, f.u. foresets, floating granules.

CLASTIC CORE LOGGING FORM

Location: Maybelle River
Date: January 2003
Drill hole: MR-35
Reported Core Interval: 57.4 - 57.8 m
Fm./Strat. Unit Lazenby Lake Formation

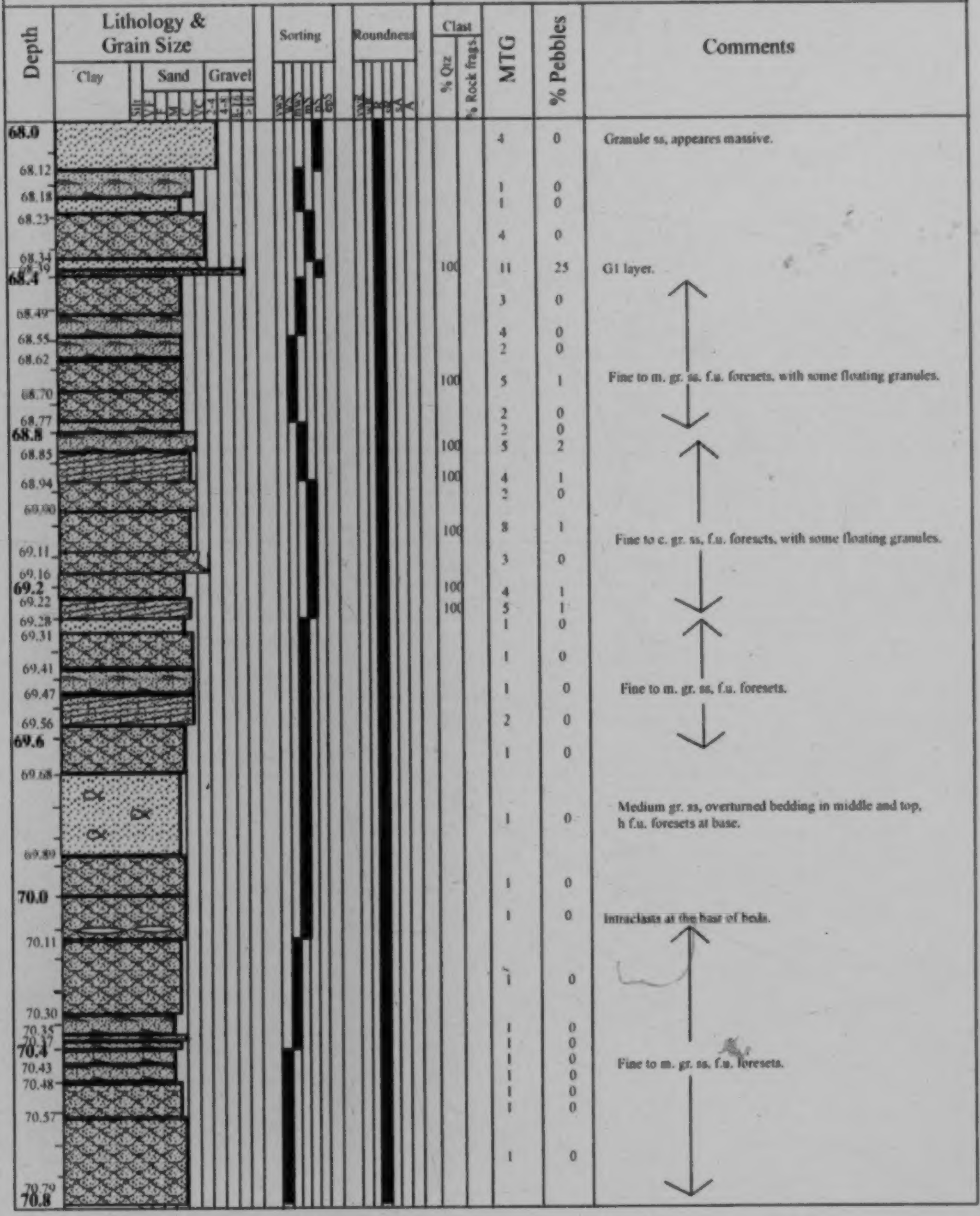

Depth
Lithology & Grain Size
Clay
Silt
VF
F
M
C
VC
Sand
Gravel
2-4
4-8
8-16
>16
Sorting
Roundness
Clast
% Qtz
% Rock frags.
57.4
57.51
57.55
57.6
57.63
57.75
57.8

Depth	MTG	% Pebbles	Comments
57.4 - 57.51	3	0	Fine to c. gr. ss, f.u. foresets
57.51 - 57.55	2	0	Fine to c. gr. ss, f.u. foresets
57.55 - 57.63	3	0	
57.63 - 57.75	2	0	Fine to m. gr. ss, overturned bedding at top with x-beds at base.
57.75 - 57.8	2	0	Fine to c. gr. ss, f.u. foresets

CLASTIC CORE LOGGING FORM

Location: Maybelle River	Date: January 2003	Drill hole: MR-35

Reported Core Interval: 68.0 - 71.0 m	Fm./Strat. Unit Lazenby Lake-Manitou Falls gradual contact


Depth
Lithology & Grain Size
Clay
Silt
Sand
Gravel
Sorting
Roundness
Clast
% Qtz
% Rock frags
MTG
% Pebbles
Comments
68.0
68.12
68.18
68.23
68.34
68.39
68.4
68.49
68.55
68.62
68.70
68.77
68.8
68.85
68.94
69.00
69.11
69.16
69.2
69.22
69.28
69.31
69.41
69.47
69.56
69.6
69.68
69.89
70.0
70.11
70.30
70.35
70.37
70.4
70.43
70.48
70.57
70.79
70.8
4 0
1 0
1 0
4 0
100 11 25
3 0
4 0
2 0
100 5 1
2 0
2 0
100 5 2
100 4 1
2 0
100 8 1
3 0
100 4 1
100 5 1
1 0
1 0
1 0
2 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0

Granule ss, appeares massive.

Gl layer.

Fine to m. gr. ss. f.u. foresets, with some floating granules.

Fine to c. gr. ss, f.u. foresets, with some floating granules.

Fine to m. gr. ss, f.u. foresets.

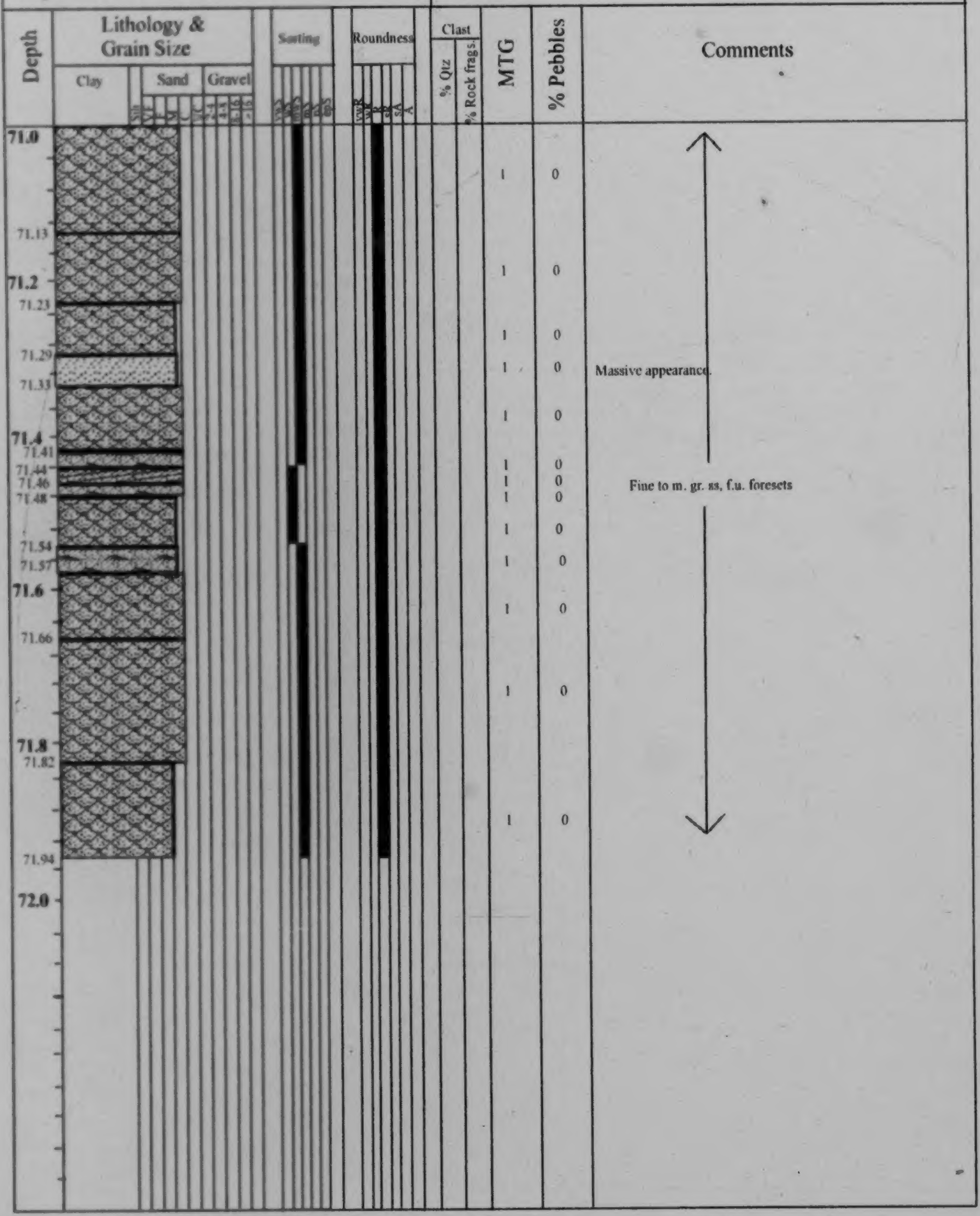
Medium gr. ss, overturned bedding in middle and top,
h f.u. foresets at base.

Intraclasts at the base of beds.

Fine to m. gr. ss. f.u. foresets.

CLASTIC CORE LOGGING FORM

Location: Maybelle River	Date: January 2003	Drill hole: MR-35
Reported Core Interval: 71.0 - 71.94 m	Fm./Strat. Unit Manitou Falls Formation	

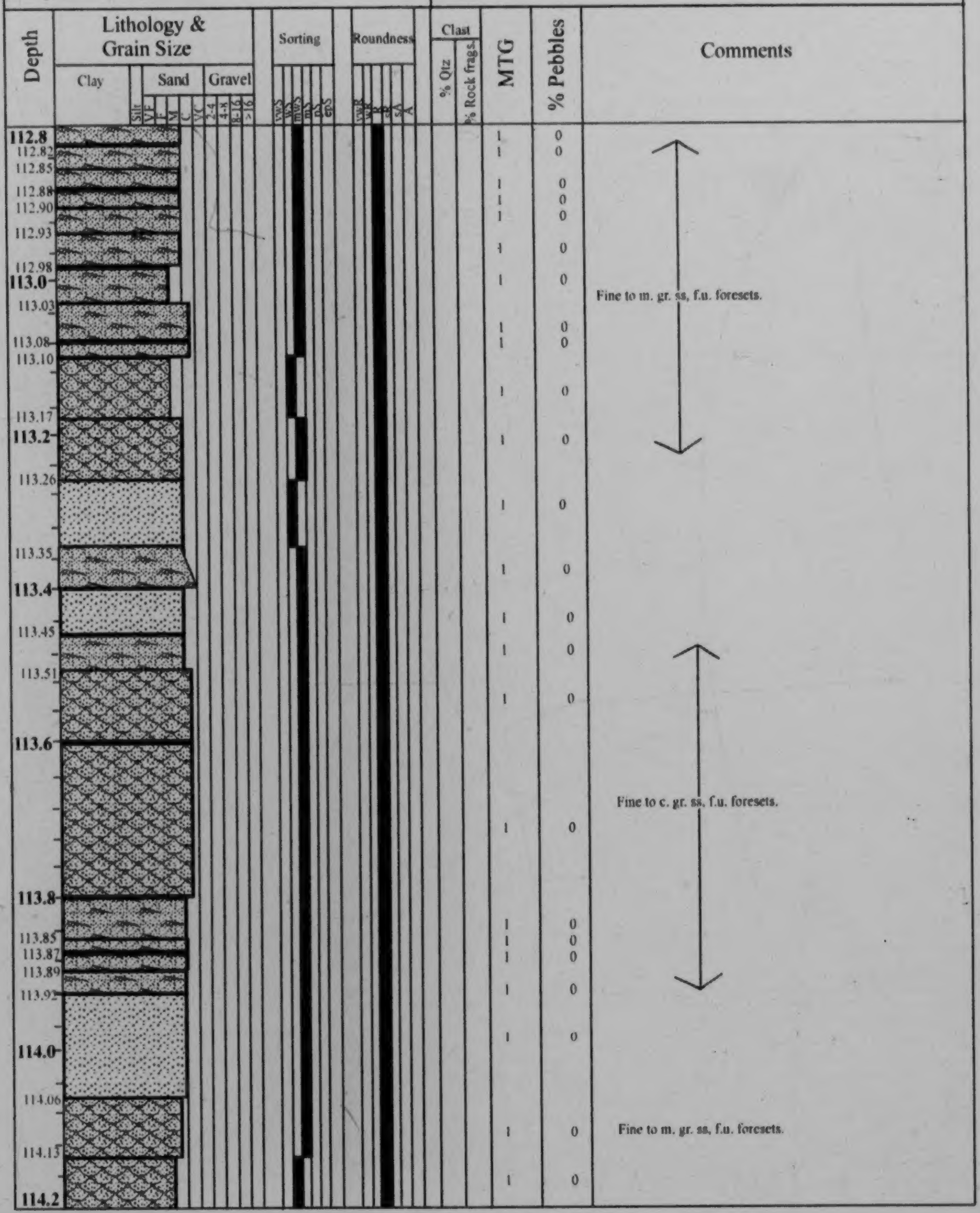

Depth
Lithology & Grain Size
Clay
Sand
Gravel
Sorting
Roundness
Clast
% Qtz
% Rock frags.
MTG
% Pebbles
Comments
71.0
71.13
71.2
71.23
71.29
71.33
71.4
71.41
71.44
71.46
71.48
71.54
71.57
71.6
71.66
71.8
71.82
71.94
72.0
1
0

Massive appearance.

Fine to m. gr. ss, f.u. foresets

CLASTIC CORE LOGGING FORM

Location: Maybelle River
Date: January 2003
Drill hole: MR-35
Reported Core Interval: 112.8 - 114.2 m
Fm./Strat. Unit Manitou Falls Formation


Depth
Lithology & Grain Size
Clay
Silt
Sand
VF
F
M
C
VC
Gravel
2-4
4-8
8-16
>16
Sorting
vwS
wS
mwS
mS
pS
vpS
Roundness
vwR
wR
R
sR
sA
A
Clast
% Qtz
% Rock frags.
MTG
% Pebbles
Comments
112.8
112.82
112.85
112.88
112.90
112.93
112.98
113.0
113.03
113.08
113.10
113.17
113.2
113.26
113.35
113.4
113.45
113.51
113.6
113.8
113.85
113.87
113.89
113.92
114.0
114.06
114.13
114.2
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0

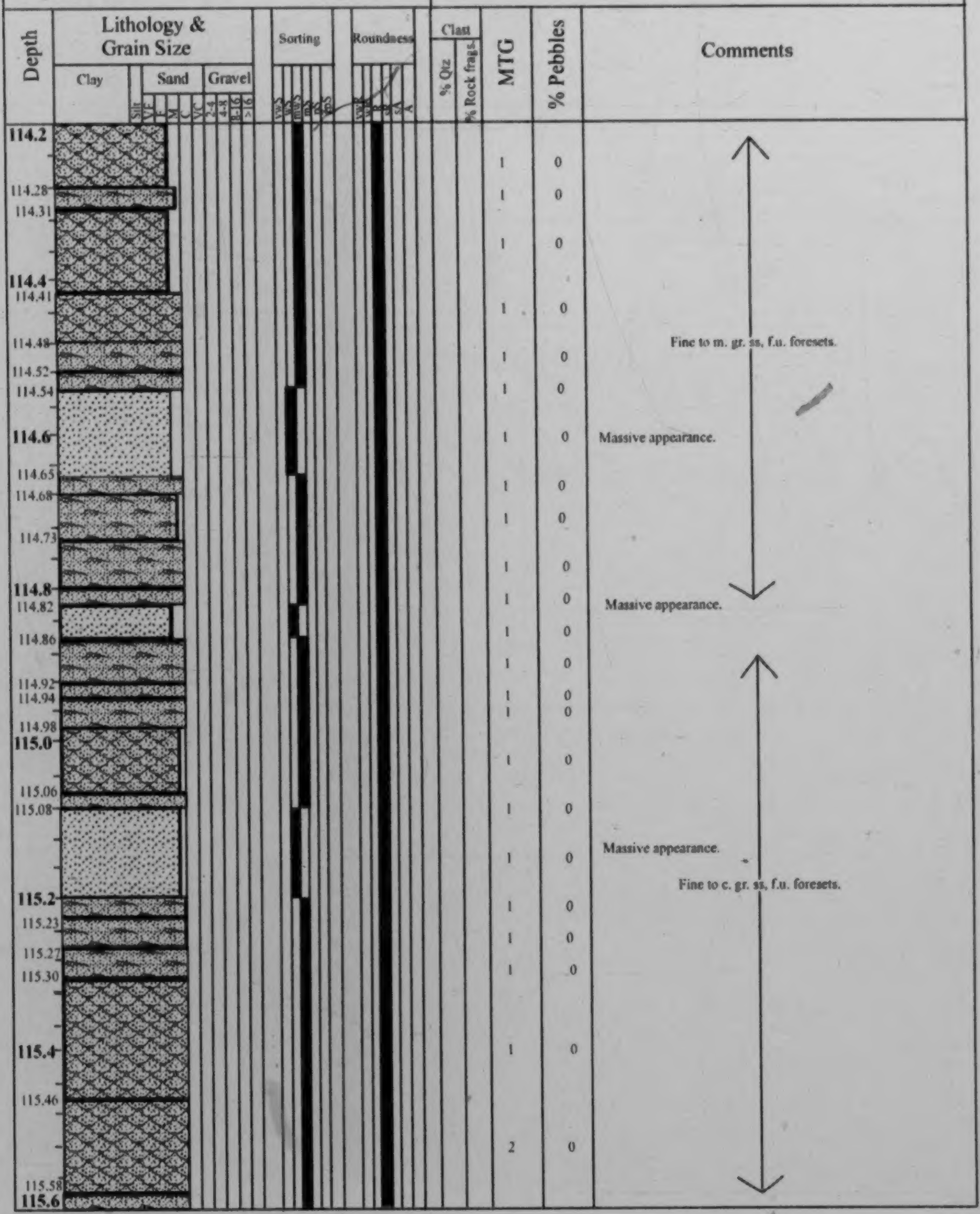
Fine to m. gr. ss, f.u. foresets.

Fine to c. gr. ss, f.u. foresets.

Fine to m. gr. ss, f.u. foresets.

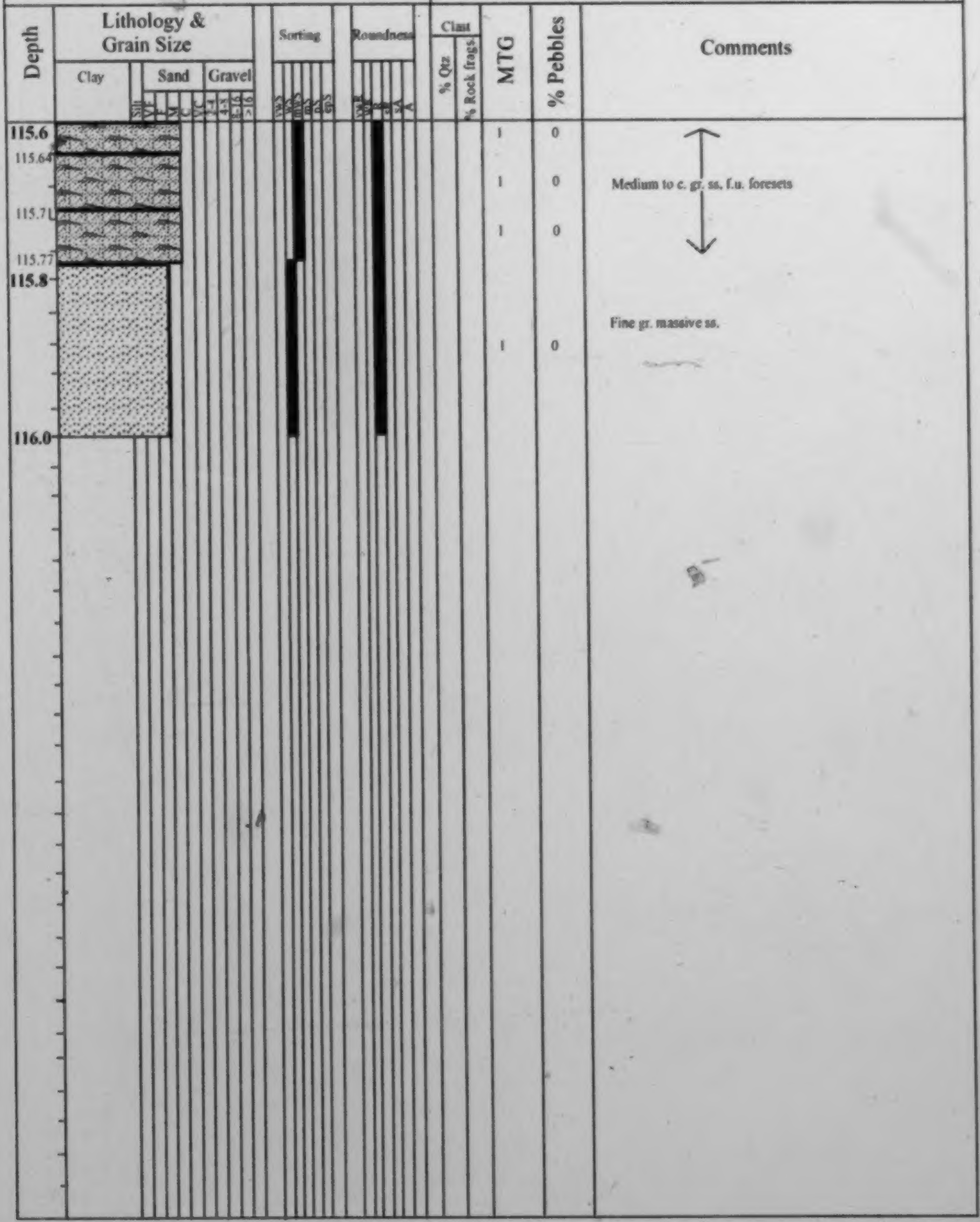
CLASTIC CORE LOGGING FORM

Location: Maybelle River	Date: January 2003	Drill hole: MR-35
Reported Core Interval: 114.2 - 115.6 m	Fm./Strat. Unit Manitou Falls Formation	


Depth
Lithology & Grain Size
Clay
Silt
VF
F
M
C
VC
Sand
Gravel
2-4
4-8
8-16
>16
Sorting
Roundness
Clast
% Qtz
% Rock frags.
MTG
% Pebbles
Comments
114.2
114.28
114.31
114.4
114.41
114.48
114.52
114.54
114.6
114.65
114.68
114.73
114.8
114.82
114.86
114.92
114.94
114.98
115.0
115.06
115.08
115.2
115.23
115.27
115.30
115.4
115.46
115.58
115.6
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
2 0
Fine to m. gr. ss, f.u. foresets.
Massive appearance.
Massive appearance.
Massive appearance.
Fine to c. gr. ss, f.u. foresets.

CLASTIC CORE LOGGING FORM

Location: Maybelle River	Date: January 2003	Drill hole: MR-35
Reported Core Interval: 115.6 - 116.0 m	Fm./Strat. Unit Manitou Falls Formation	


Depth
Lithology & Grain Size
Clay
Sand
Gravel
Silt
VF
F
M
C
VC
Sorting
Roundness
Clast
% Qtz
% Rock frags
MTG
% Pebbles
Comments
115.6
115.64
115.71
115.77
115.8
116.0
1
0
1
0
1
0
1
0

Medium to c. gr. ss, f.u. foresets

Fine gr. massive ss.

CLASTIC CORE LOGGING FORM

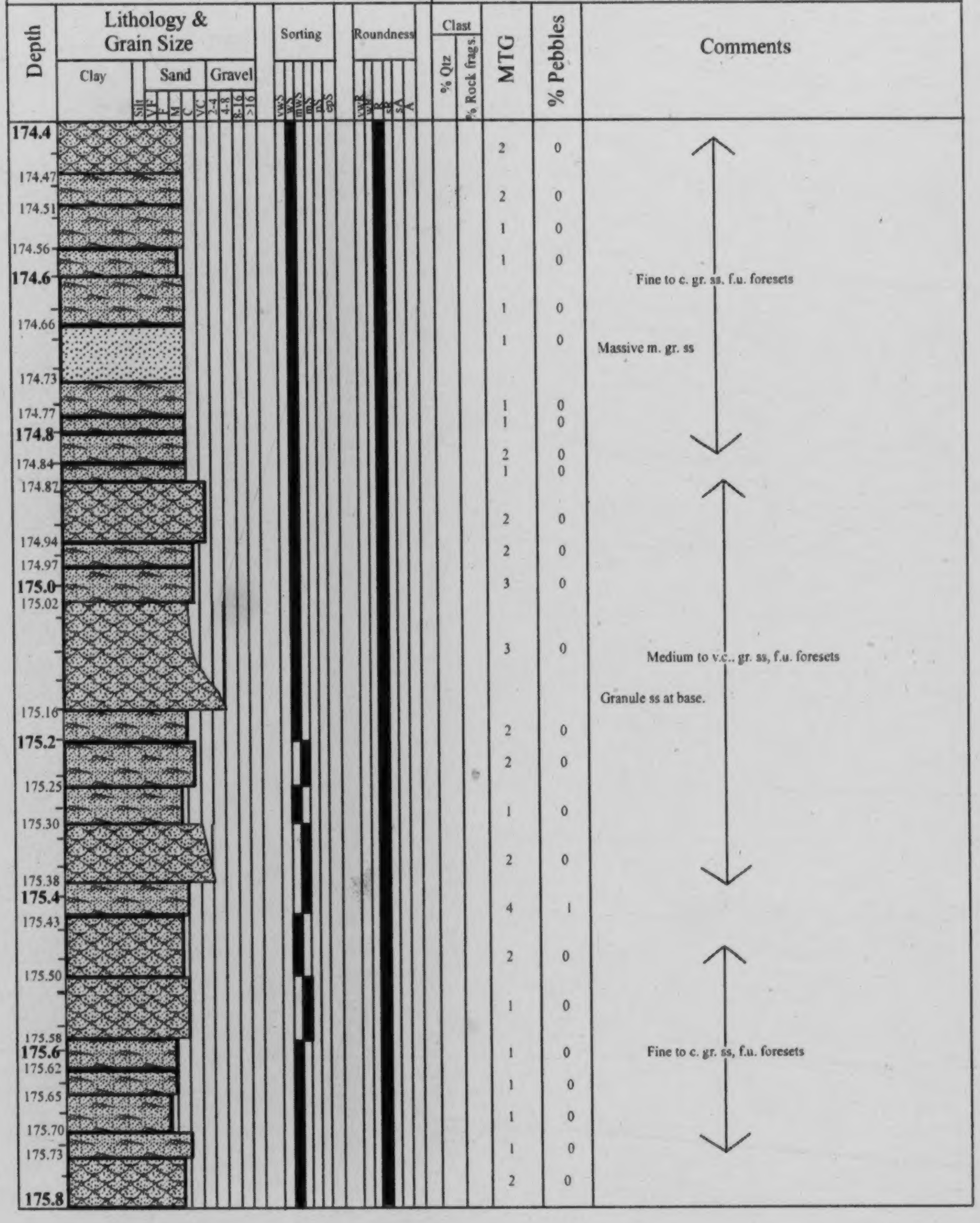
Location: Maybelle River

Date: January 2003

Drill hole: MR-35

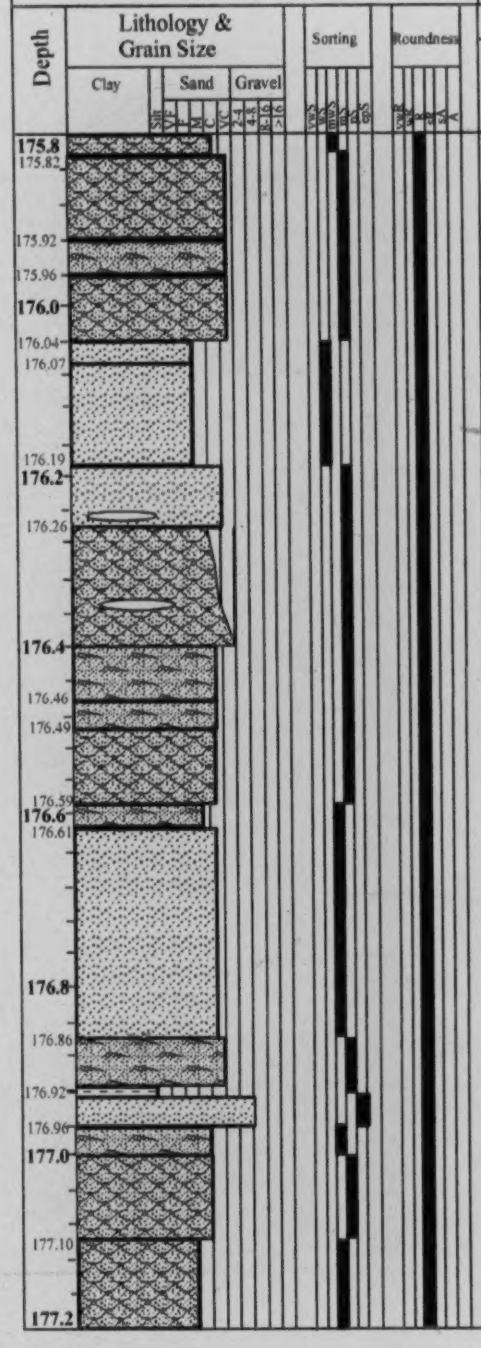
Reported Core Interval: 174.4 - 175.8 m

Fm./Strat. Unit Manitou Falls Formation


Depth
Lithology & Grain Size
Clay
Sand
Gravel
Silt
VF
F
M
C
VC
2-4
4-8
8-16
>16
Sorting
vwS
wS
mwS
mS
pS
epS
Roundness
vwR
wR
R
sR
sA
A
Clast
% Qtz
% Rock frags.
MTG
% Pebbles
Comments
174.4
174.47
174.51
174.56
174.6
174.66
174.73
174.77
174.8
174.84
174.87
174.94
174.97
175.0
175.02
175.16
175.2
175.25
175.30
175.38
175.4
175.43
175.50
175.58
175.6
175.62
175.65
175.70
175.73
175.8
2 0
2 0
1 0
1 0
1 0
1 0
1 0
1 0
2 0
1 0
2 0
2 0
3 0
3 0
2 0
2 0
1 0
2 0
4 1
2 0
1 0
1 0
1 0
1 0
1 0
2 0
Fine to c. gr. ss. f.u. foresets
Massive m. gr. ss
Medium to v.c.. gr. ss, f.u. foresets
Granule ss at base.
Fine to c. gr. ss, f.u. foresets

CLASTIC CORE LOGGING FORM

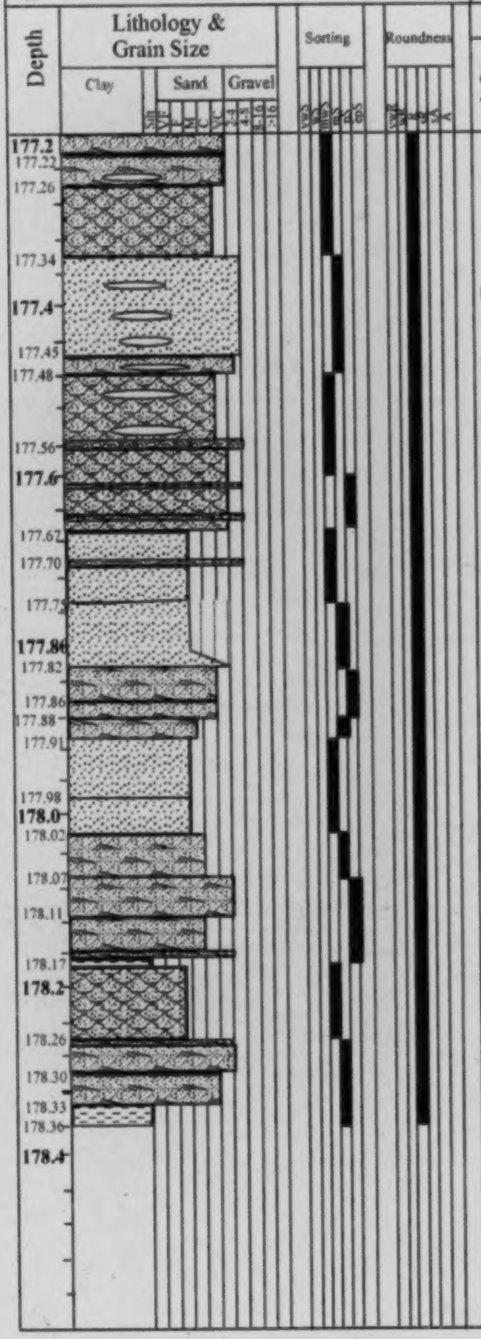
Location: Maybelle River
Date: January 2003
Drill hole: MR-35
Reported Core Interval: 175.8 - 177.2 m
Fm./Strat. Unit Manitou Falls Formation


Depth
Lithology & Grain Size
Clay
Silt
Sand
VF
F
M
C
VC
Gravel
2-4
4-8
8-16
>16
Sorting
vwS
wS
mwS
mS
pS
vpS
Roundness
vwR
wR
R
sR
sA
A
175.8
175.82
175.92
175.96
176.0
176.04
176.07
176.19
176.2
176.26
176.4
176.46
176.49
176.59
176.6
176.61
176.8
176.86
176.92
176.96
177.0
177.10
177.2

Clast % Qtz	Clast % Rock frags.	MTG	% Pebbles	Comments
		2	0	
				Coarse to v.c. gr. ss, f.u. foresets
		2	0	
		2	0	
		1	0	
		1	0	Fine gr. massive ss.
		2	0	Coarse gr. massive ss, intraclast at base.
		3	0	f.u. from m. to v.c. gr. ss. intraclast at base of a bed.
		2	0	
		1	0	
				Medium to c.. gr. ss, f.u. foresets
100		5	1	
		1	0	
		1	0	Medium to c. gr. massive ss.
		2	0	
				Thin mud layer.
100		7	2	Granule ss.
		2	0	
		3	0	Medium to c.. gr. ss, f.u. foresets
		2	0	

CLASTIC CORE LOGGING FORM

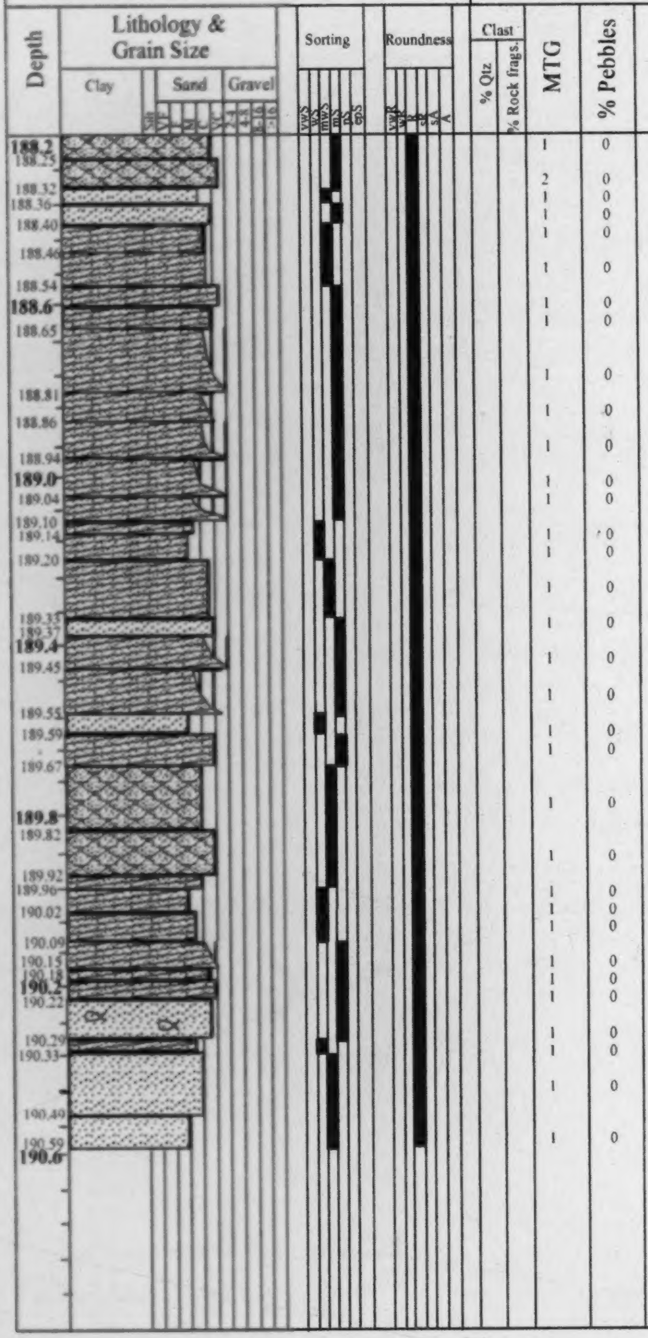
Location: Maybelle River	Date: January 2003	Drill hole: MR-35
Reported Core Interval: 177.2 - 178.36 m	Fm./Strat. Unit Manitou Falls Formation	


Depth
Lithology & Grain Size
Clay
Silt
Sand
VF
F
M
C
VC
Gravel
2-4
4-8
8-16
>16
Sorting
Roundness
177.2
177.22
177.26
177.34
177.4
177.45
177.48
177.56
177.6
177.67
177.70
177.75
177.80
177.82
177.86
177.88
177.91
177.98
178.0
178.02
178.07
178.11
178.17
178.2
178.26
178.30
178.33
178.36
178.4

Clast % Qtz	% Rock frags.	MTG	% Pebbles	Comments
		3	0	
		3	0	
				↕ Medium to v.c. gr. ss, f.u. foresets, floating granules
		2	0	
100		6	2	Granule ss, c.gr. matrix with intraclast, massive appearance.
100		4	2	
100		6	2	
				↕ Granule ss, m. gr. ss matrix, f.u. foresets
		2	0	Gl layer.
100		5	10	Gl layer.
		2	0	Fine gr. ss, massive. Gl layer.
				Fine gr. ss, massive.
		2	0	
				Fine gr. ss, massiv, c. gr. at base..
		4	0	
100		6	2	↕ Medium to v.c. gr. ss, f.u. foresets, floating granules
100		5	5	
		1	0	
		2	0	Fine gr. ss, massive.
		2	0	
		4	0	
		4	0	↕ Granule ss, m. gr. ss matrix, f.u. foresets
		1	0	Gl layer.
		1	0	Very fine to f. gr. ss, f.u. foresets.
				Gl layer.
100		5	10	↕ Granule ss, m. gr. ss matrix, f.u. foresets
100		5	1	
		1	0	

CLASTIC CORE LOGGING FORM

Location: Maybelle River	Date: January 2003	Drill hole: MR-35
Reported Core Interval: 188.2 - 190.59 m	Fm./Strat. Unit Manitou Falls Formation	


Depth
Lithology & Grain Size
Clay
Sand
Gravel
Sorting
vwS
wS
mwS
mS
pS
vpS
Roundness
vwR
wR
R
sR
sA
A
Clast
% Qtz
% Rock frags.
MTG
% Pebbles
188.2
188.25
188.32
188.36
188.40
188.46
188.54
188.6
188.65
188.81
188.86
188.94
189.0
189.04
189.10
189.14
189.20
189.33
189.37
189.4
189.45
189.55
189.59
189.67
189.8
189.82
189.92
189.96
190.02
190.09
190.15
190.18
190.2
190.22
190.29
190.33
190.49
190.59
190.6
1 0
2 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0

Comments

Fine to c. gr. massive ss

Fine to v.c. gr. ss with thin low angle x-beds, overall f.u.

Fine to c. gr. massive ss

Fine. gr. massive ss

Fine to c. gr. ss, f.u. foresets, x-bedding.

Fine to v.c. gr. ss with thin low angle x-beds, overall f.u.

Overturned bedding at base, with possible low angle x-beds at top.

Fine to m. gr. massive ss

CLASTIC CORE LOGGING FORM

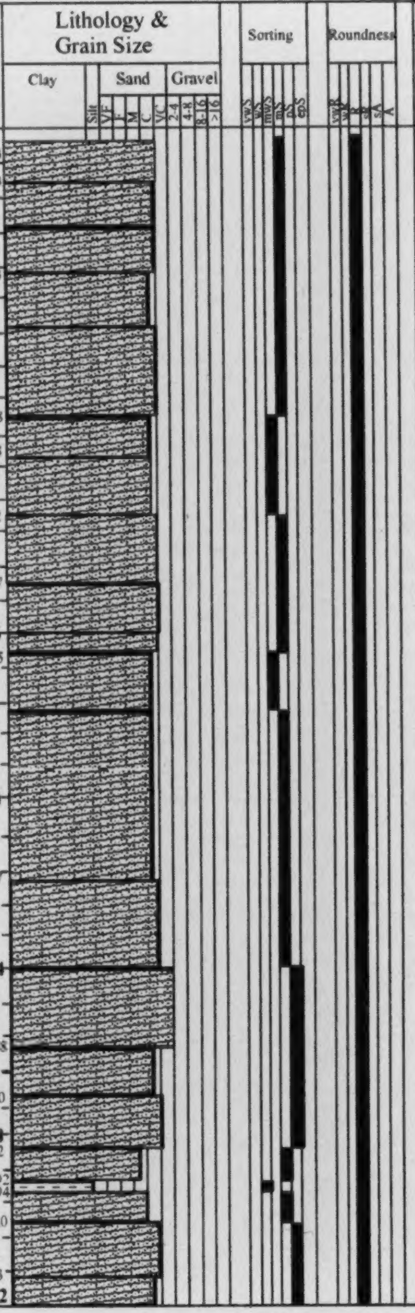
Location: Maybelle River

Date: January 2003

Drill hole: MR-35

Reported Core Interval: 196.4 - 199.2 m

Fm./Strat. Unit Fair Point Formation



Depth	% Qtz	% Rock frags.	MTG	% Pebbles	Comments
196.4 - 196.43					
196.43 - 196.53			3	0	Medium to c. gr. ss, looks like low angle x-beds, f.u. (196.4 - 197.77)
196.53 - 196.63			1	0	
196.63 - 196.73			1	0	
196.73 - 196.87			1	0	
196.87 - 197.08			1	0	
197.08 - 197.18			1	0	
197.18 - 197.32			1	0	
197.32 - 197.47			1	0	
197.47 - 197.6			1	0	
197.6 - 197.65			2	0	
197.65 - 197.77			1	0	
197.77 - 198.17			4	0	Coarse to v.c. . gr. ss, looks like low angle x-beds, f.u., floating granules. (197.77 - 199.2)
198.17 - 198.4			2	0	
198.4 - 198.58			3	0	
198.58 - 198.70			4	0	
198.70 - 198.82		100	20	10	
198.82 - 198.92			2	0	
198.92 - 198.94			1	0	Clay bed.
198.94 - 199.0			2	0	
199.0 - 199.13			2	0	
199.13 - 199.2					

CLASTIC CORE LOGGING FORM

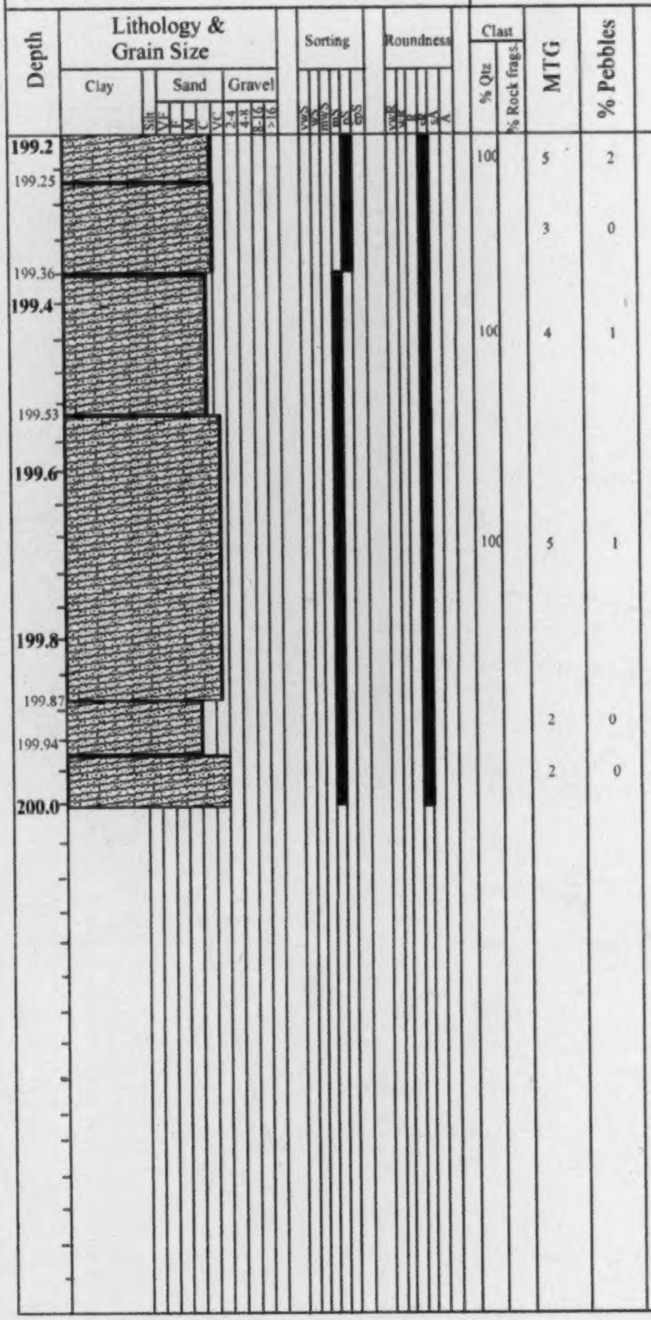
Location: Maybelle River

Date: January 2003

Drill hole: MR-35

Reported Core Interval: 199.2 - 200.0 m

Fm./Strat. Unit Fair Point Formation

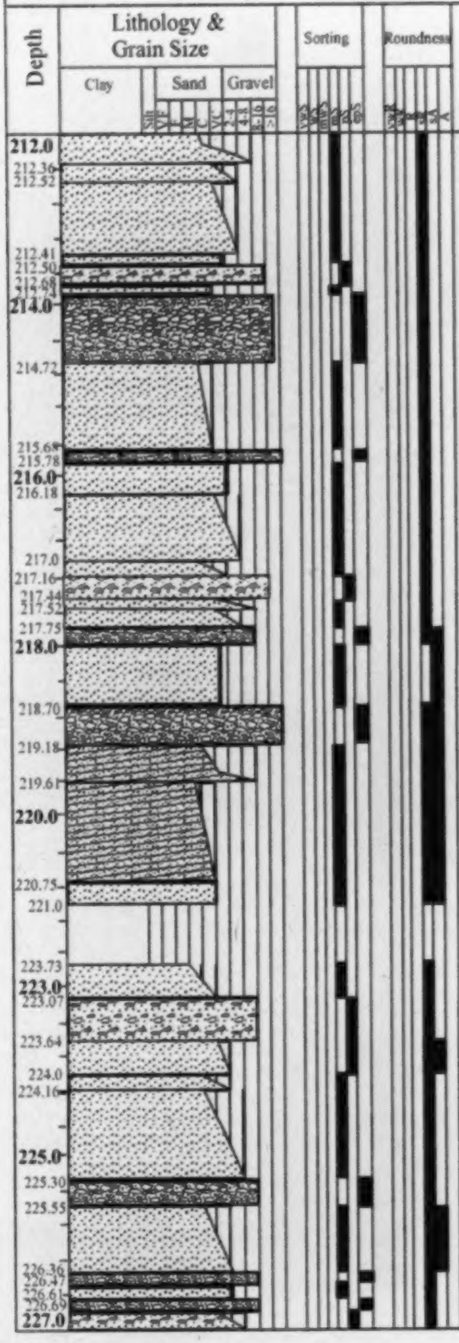

Depth
Lithology & Grain Size
Clay
Silt
Sand
VF
F
M
C
VC
Gravel
2-4
4-8
8-16
>16
Sorting
VWS
WS
mWS
MS
PS
vPS
Roundness
WR
R
SR
SA
A
Clast
% Qtz
% Rock frags.
MTG
% Pebbles
199.2
199.25
199.36
199.4
199.53
199.6
199.8
199.87
199.94
200.0
100
5
2
3
0
100
4
1
100
5
1
2
0
2
0

Comments

Medium to v.c. gr. ss, low angle x-beds, f.u., floating granules.

CLASTIC CORE LOGGING FORM

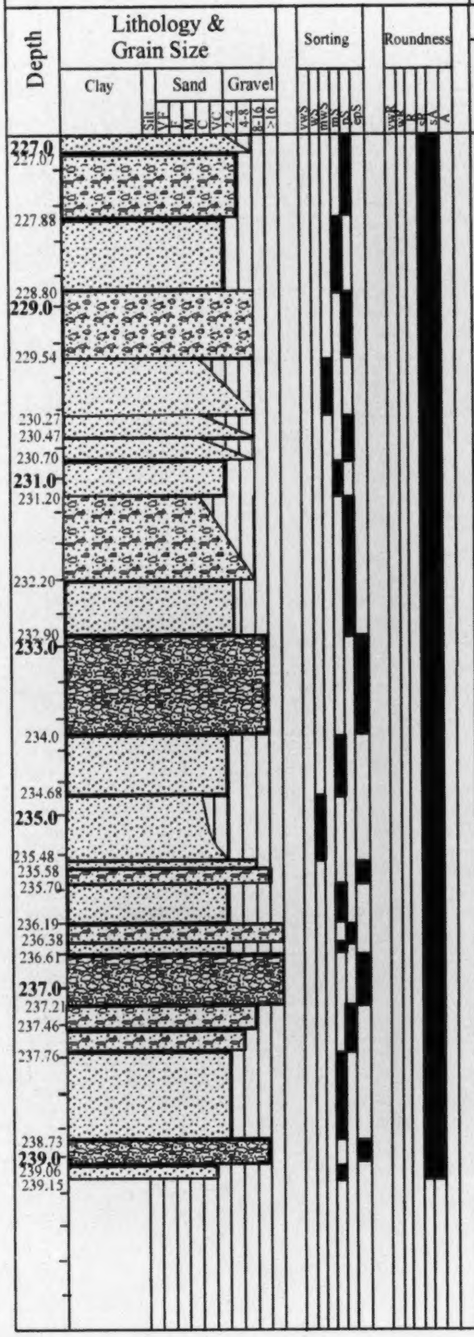
Location: Maybelle River	Date: January 2003	Drill hole: MR-35
Reported Core Interval: 212.0 - 227.0 m	Fm./Strat. Unit Fair Point Formation	



Clast		MTG	% Pebbles	Comments
% Qtz	% Rock frags			
98	2	26	4	
95	5	7	2	
90	10	18	5	
98	2	5	2	
90	10	34	25	Pebbly sandstone, c. to v.c. gr. ss matrix.
		2	0	
90	10	41	40	Matrix supported conglomerate, c. to v.c. gr. ss matrix
95	5	39	5	
95	5	40	40	Matrix supported conglomerate, v.c. gr. ss matrix
90	10	8	5	
95	5	18	3	
98	2	5	2	
85	15	28	20	Pebbly sandstone, c. to v.c. gr. ss matrix.
90	10	12	10	
95	5	45	5	Matrix supported conglomerate, c. to v.c. gr. ss matrix
98	2	41	30	
90	10	13	5	
80	20	40	45	Matrix supported conglomerate, c. to v.c. gr. ss matrix
95	5	20	3	
90	10	57	10	Fine to m. gr. ss. f.u. low angle x-beds, f.u. from small pebbles to f. gr. ss.
		3	0	
				Missing core.
100		6	2	
95	5	24	20	Pebbly sandstone, c. to v.c. gr. ss matrix.
98	2	11	15	
99	1	6	1	
98	2	15	5	
85	15	30	30	Matrix supported conglomerate, c. to v.c. gr. ss matrix
95	5	42	5	
85	15	17	40	Matrix supported conglomerate. c. to v.c. gr. ss matrix
95	5	12	5	Matrix supported conglomerate, c. to v.c. gr. ss matrix
85	15	17	40	

CLASTIC CORE LOGGING FORM

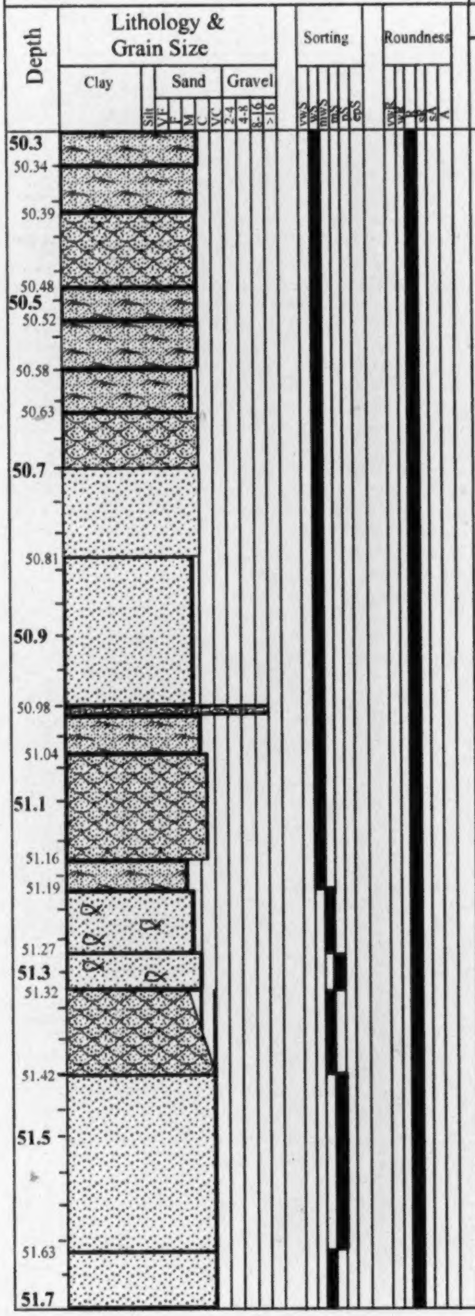
Location: Maybelle River
Date: January 2003
Drill hole: MR-35
Reported Core Interval: 227.0 - 239.15 m
Fm./Strat. Unit Fair Point Formation


Depth
Lithology & Grain Size
Clay
Silt
Sand
VF
F
M
C
VC
Gravel
2-4
4-8
8-16
>16
Sorting
vwS
wS
mwS
mS
pS
vpS
Roundness
vwR
wR
R
sR
sA
A
227.0
227.07
227.88
228.80
229.0
229.54
230.27
230.47
230.70
231.0
231.20
232.20
232.90
233.0
234.0
234.68
235.0
235.48
235.58
235.70
236.19
236.38
236.61
237.0
237.21
237.46
237.76
238.73
239.0
239.06
239.15

Clast % Qtz	Clast % Rock frags.	MTG	% Pebbles	Comments
90	10	19	20	
95	5	31	15	Pebbly ss, v.c. gr. ss matrix, massive.
95	5	70	5	
95	5	50	25	Pebbly ss. v.c. gr. ss matrix, massive.
98	2	13	2	
95	5	34	20	
90	10	10	20	
95	5	6	2	
90	10	38	20	Pebbly ss, v.c. gr. ss matrix, massive.
100		8	6	
95	5	70	40	Matrix supported conglomerate, c. to v.c. gr. ss matris, massive.
95	5	25	5	
		3	0	
95	5	28	15	Pebbly ss, v.c. gr. ss matrix, massive.
95	5	42	40	
98	2	17	4	
95	5	40	20	Pebbly ss, v.c. gr. ss matrix, massive.
98	2	10	4	
90	10	68	50	Matrix supported conglomerate, c. to v.c. gr. ss matris, massive.
95	5	27	25	Pebbly ss. v.c. gr. ss matrix, massive.
				Pebbly ss, v.c. gr. ss matrix, massive.
98	2	17	20	
98	2	15	4	
80	20	52	40	Matrix supported conglomerate, c. to v.c. gr. ss matris, massive.
		3	0	FP-basement contact sharp.

CLASTIC CORE LOGGING FORM

Location: Maybelle River	Date: January 2003	Drill hole: MR-47
Reported Core Interval: 50.3 - 51.7 m	Fm./Strat. Unit Lazenby Lake Formation	


Depth
Lithology & Grain Size
Clay
Silt
VF
F
M
C
VC
Sand
Gravel
2-4
4-8
8-16
>16
Sorting
Roundness
50.3
50.34
50.39
50.48
50.5
50.52
50.58
50.63
50.7
50.81
50.9
50.98
51.04
51.1
51.16
51.19
51.27
51.3
51.32
51.42
51.5
51.63
51.7

Clast % Qtz	% Rock frags	MTG	% Pebbles	Comments
		1	0	
		2	0	
		1	0	
		1	0	Fine to c. gr. ss, f.u. foresets, minor floating granules.
		3	0	
		2	0	
		2	0	
		2	0	Fine to c. gr. massive ss, some floating granules.
		3	0	
		14		G1 layer.
100		4	1	Fine to c. gr. ss, f.u. foresets, floating granules.
100		4	1	
100		4	1	
100		14	3	Fine to c. gr. ss with overturned bedding.
100		4	2	
100		3	2	
100		7	3	Medium to c. gr. massive ss, some floating granules.
100		4	1	

CLASTIC CORE LOGGING FORM

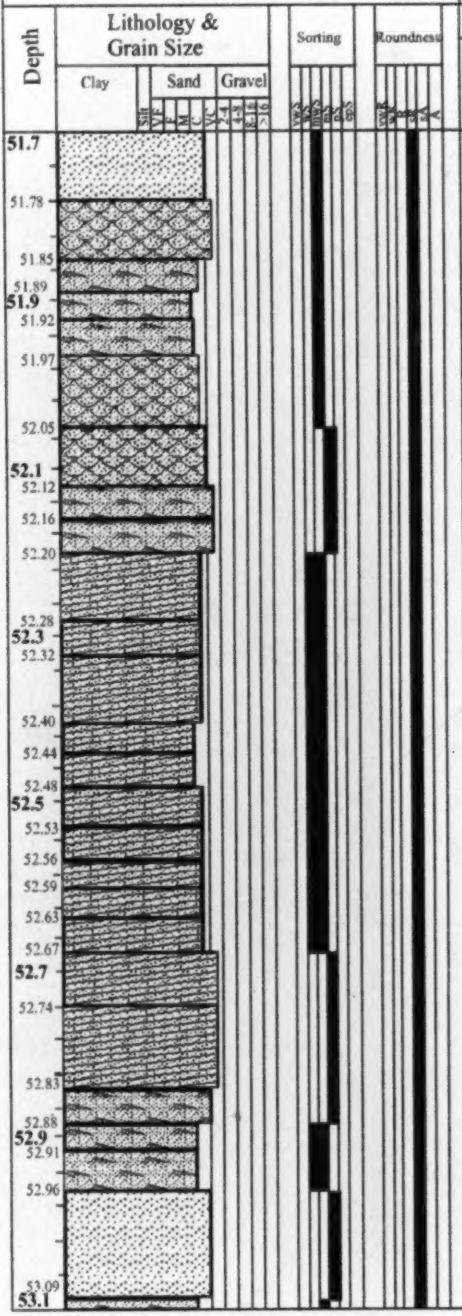
Location: Maybelle River

Date: January 2003

Drill hole: MR-47

Reported Core Interval: 51.7 - 53.1 m

Fm./Strat. Unit Lazenby Lake Formation


Depth
Lithology & Grain Size
Clay
Silt
Sand
VF
F
M
C
VC
Gravel
2-4
4-8
8-16
>16
Sorting
Roundness
51.7
51.78
51.85
51.89
51.9
51.92
51.97
52.05
52.1
52.12
52.16
52.20
52.28
52.3
52.32
52.40
52.44
52.48
52.5
52.53
52.56
52.59
52.63
52.67
52.7
52.74
52.83
52.88
52.9
52.91
52.96
53.09
53.1

Clast % Qtz	Clast % Rock frags	MTG	% Pebbles	Comments
100		4	1	Medium to c. gr. massive ss.
100		11	3	
100		5	1	
		1	0	
		3	0	
		3	0	Medium to v.c. gr. ss, f.u. foresets, flaoting granules.
		2	0	
		2	0	
100		4	1	
		3	0	
		1	0	
		1	0	
		1	0	Medium to c. gr. ss, f.u. foresets, low angle x-beds, floating granules.
		1	0	
		6	0	
		2	0	
		2	0	
		3	0	
		2	0	
100		3	1	
100		4	2	Medium to v.c. gr. ss, f.u. foresets. low angle x-beds, floating granules.
100		4	2	
100		7	1	Medium to v.c. gr. ss, f.u. foresets, flaoting granules.
100		6	1	
100		5	2	Medium to c. gr. massive ss.

CLASTIC CORE LOGGING FORM

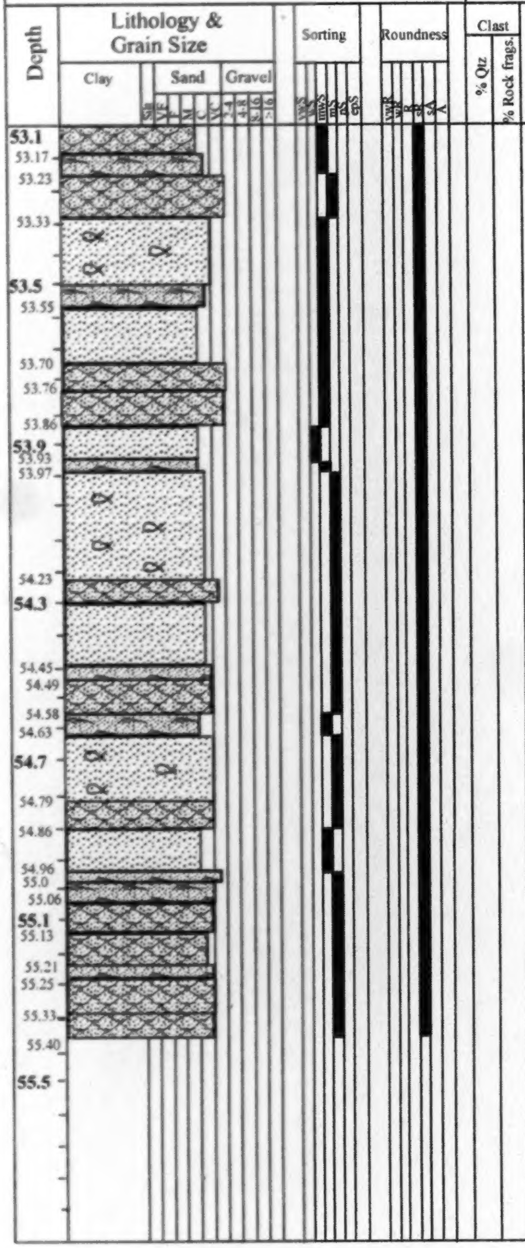
Location: Maybelle River

Date: January 2003

Drill hole: MR-47

Reported Core Interval: 53.1 - 55.4 m

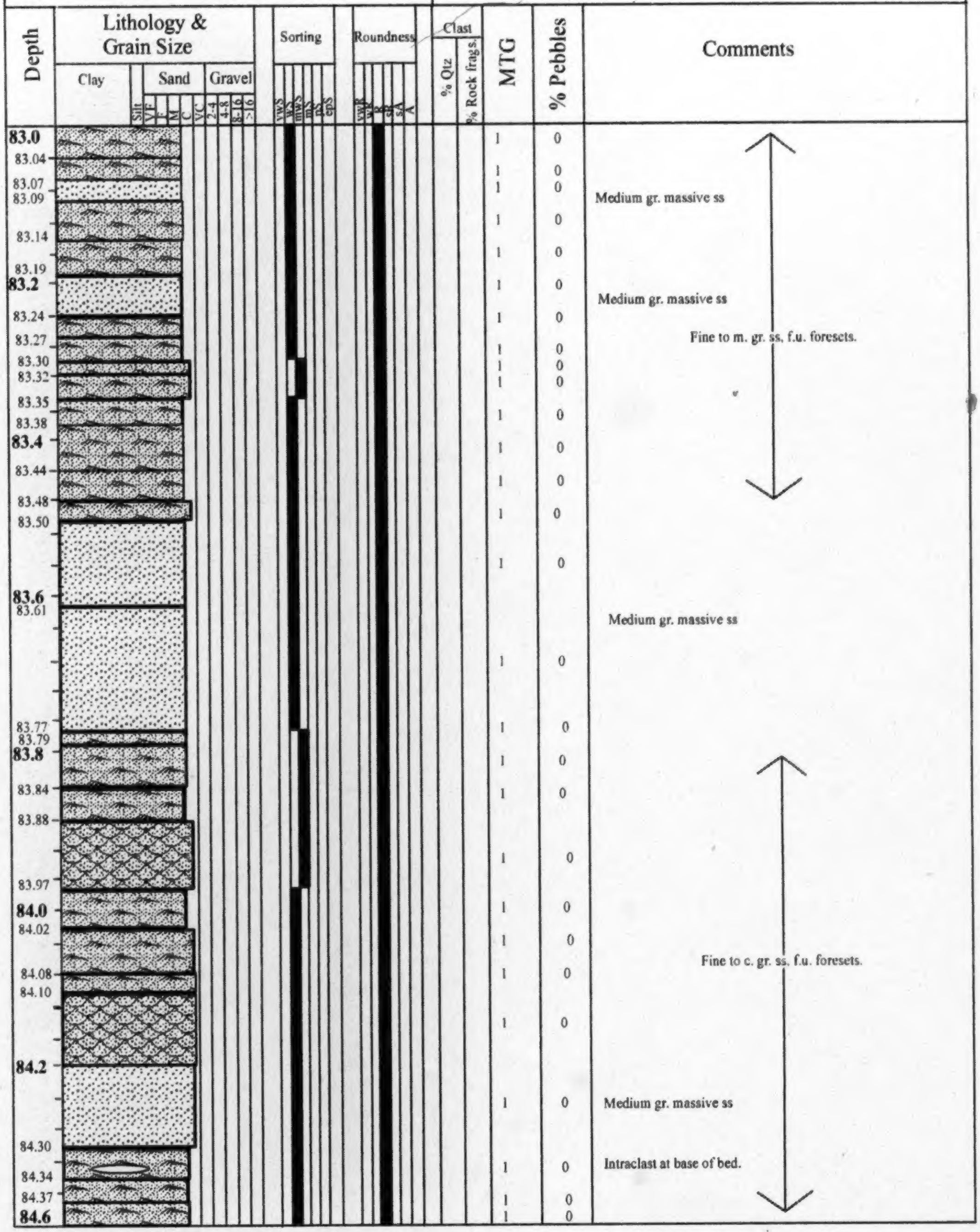
Fm./Strat. Unit Lazenby Lake Formation



MTG	% Pebbles	Comments
3	0	
5	1	
		Medium to c. gr. ss, f.u. foresets, floating granules.
6	3	
5	2	Medium to c. gr. ss with overturned bedding.
2	0	
2	0	Medium gr. massive ss, floating granules.
6	2	
		Medium to v.c. gr. ss, f.u. foresets, floating granules.
5	2	
4	1	Medium gr. massive ss, floating granules.
2	0	
4	2	Medium to c. gr. ss with overturned bedding.
4	1	
		Medium gr. massive ss, floating granules.
2	0	
6	0	
3	0	Medium to c. gr. ss, f.u. foresets, floating granules.
3	0	
5	2	Medium to c. gr. ss with overturned bedding.
3	0	
3	0	Medium gr. massive ss, floating granules.
3	1	↑
2	0	
2	0	
4	1	Medium to c. gr. ss, f.u. foresets, floating granules.
6	2	
4	2	
2	0	↓

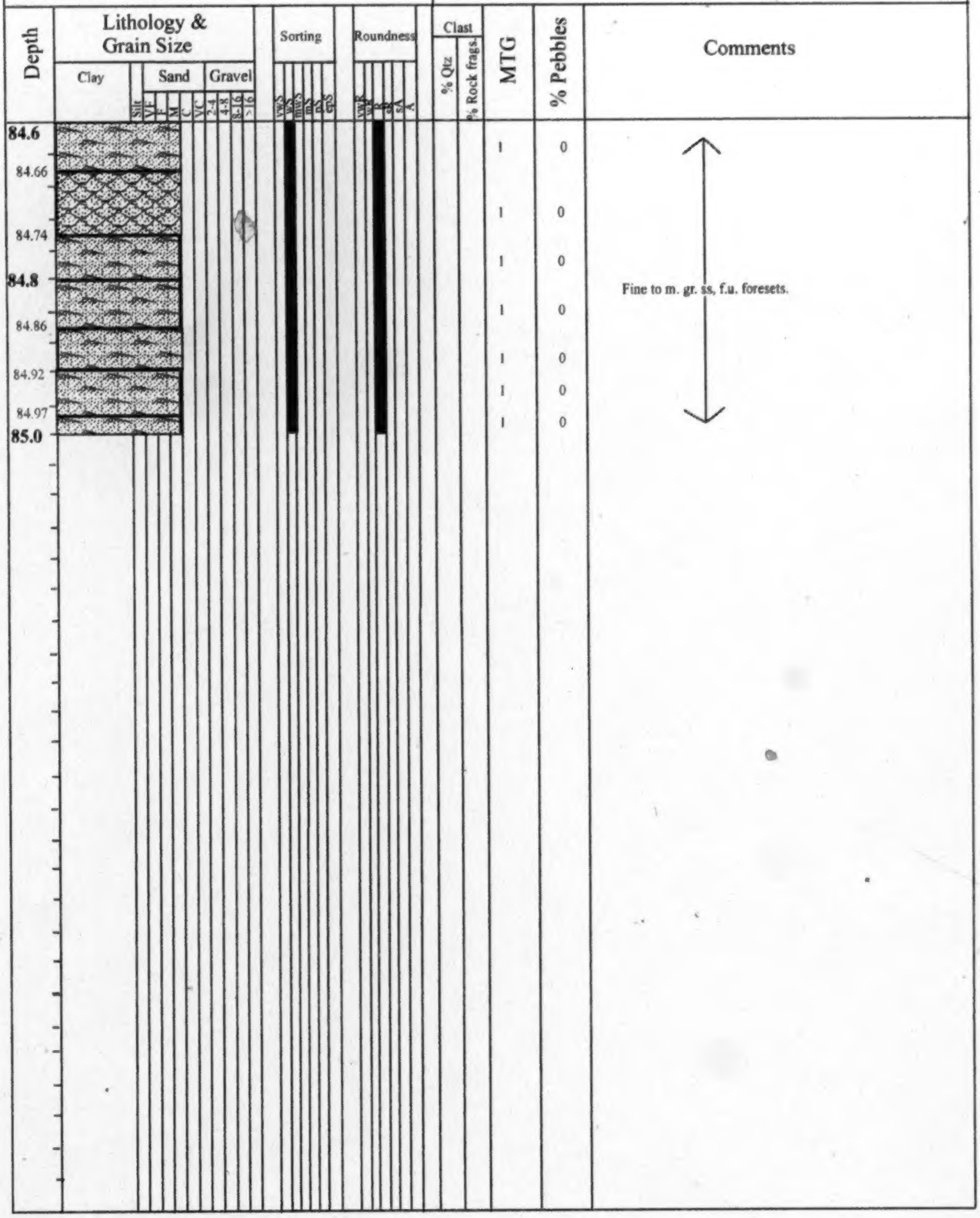
CLASTIC CORE LOGGING FORM

Location: Maybelle River
Date: January 2003
Drill hole: MR-47
Reported Core Interval: 83.0 - 84.6 m
Fm./Strat. Unit Manitou Falls Formation


Depth
Lithology & Grain Size
Clay
Silt
Sand
VF
F
M
C
VC
Gravel
2-4
4-8
8-16
>16
Sorting
vwS
wS
mwS
mS
pS
epS
Roundness
vwR
wR
R
sR
sA
A
Clast
% Qtz
% Rock frags.
MTG
% Pebbles
Comments
83.0
83.04
83.07
83.09
83.14
83.19
83.2
83.24
83.27
83.30
83.32
83.35
83.38
83.4
83.44
83.48
83.50
83.6
83.61
83.77
83.79
83.8
83.84
83.88
83.97
84.0
84.02
84.08
84.10
84.2
84.30
84.34
84.37
84.6
1
0
Medium gr. massive ss
Medium gr. massive ss
Fine to m. gr. ss, f.u. foresets.
Medium gr. massive ss
Fine to c. gr. ss. f.u. foresets.
Medium gr. massive ss
Intraclast at base of bed.

CLASTIC CORE LOGGING FORM

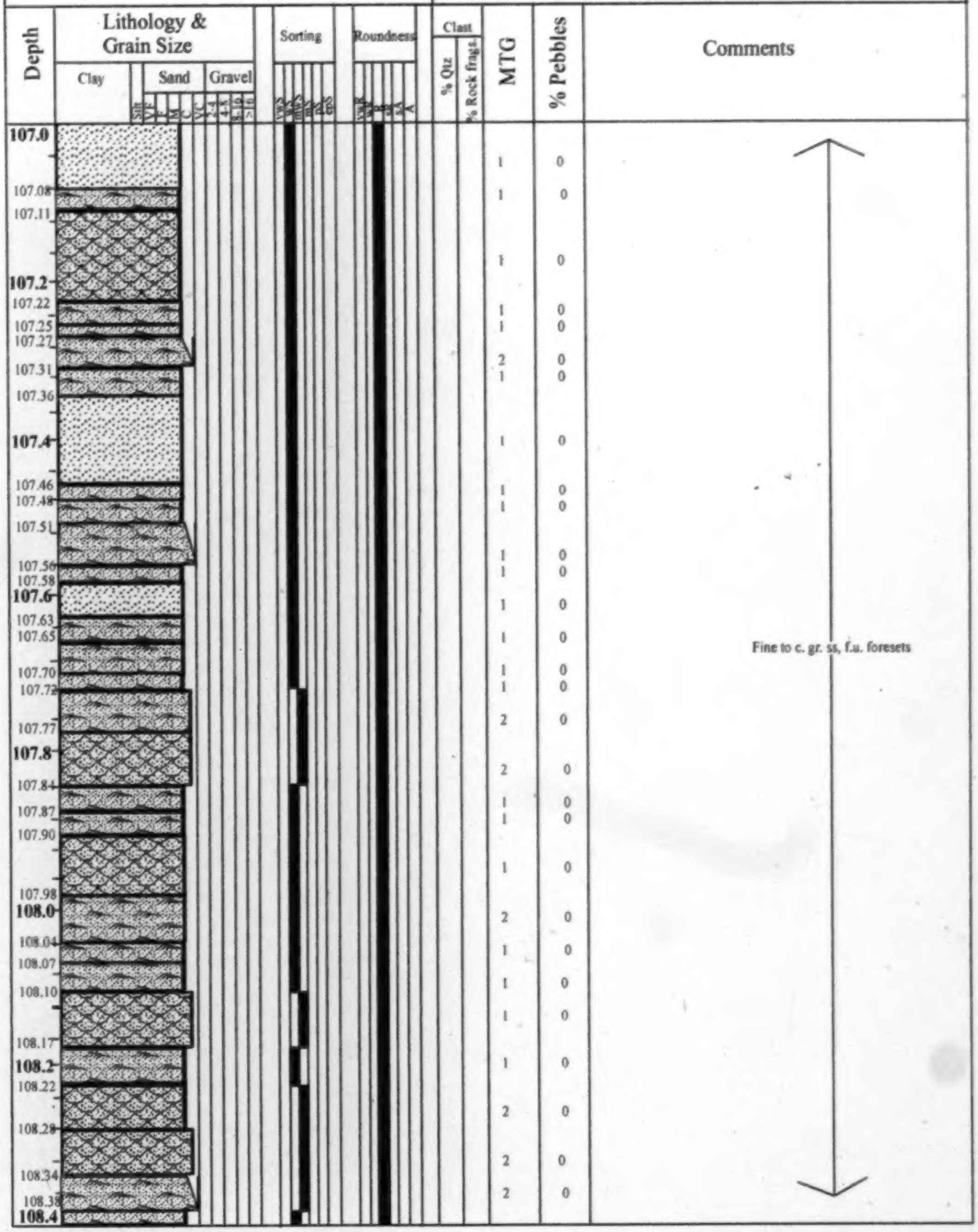
Location: Maybelle River	Date: January 2003	Drill hole: MR-47
Reported Core Interval: 84.6 - 85.0 m	Fm./Strat. Unit Manitou Falls Formation	


Depth
Lithology & Grain Size
Clay
Sand
Gravel
Silt
VF
F
M
C
VC
2-4
4-8
8-16
>16
Sorting
vwS
wS
mwS
mS
pS
vpS
Roundness
vwR
wR
R
sR
sA
A
Clast
% Qtz
% Rock frags.
MTG
% Pebbles
Comments
84.6
84.66
84.74
84.8
84.86
84.92
84.97
85.0
1
0
1
0
1
0
1
0
1
0
1
0
1
0

Fine to m. gr. ss, f.u. foresets.

CLASTIC CORE LOGGING FORM

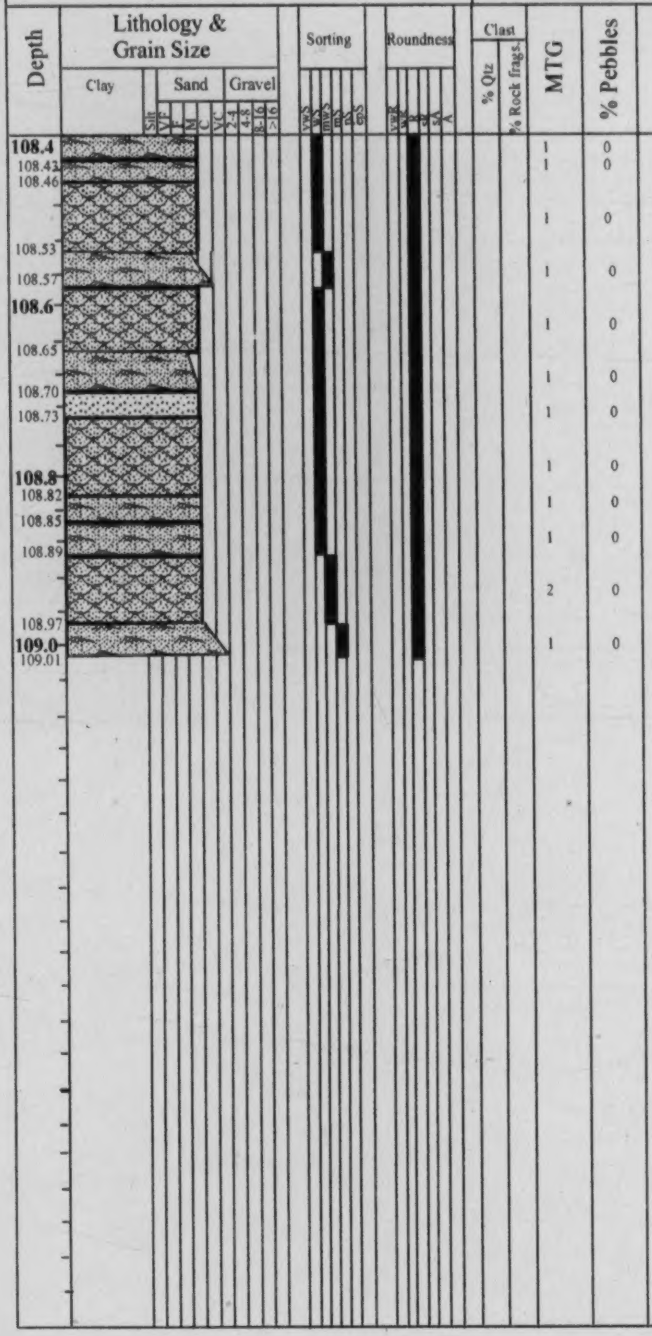
Location: Maybelle River	Date: January 2003	Drill hole: MR-47
Reported Core Interval: 107.0 - 108.4 m	Fm./Strat. Unit Manitou Falls Formation	


Depth
Lithology & Grain Size
Clay
Sand
Gravel
Silt
VF
F
M
C
VC
Sorting
Roundness
Clast
% Qtz
% Rock frags.
MTG
% Pebbles
Comments
107.0
107.08
107.11
107.2
107.22
107.25
107.27
107.31
107.36
107.4
107.46
107.48
107.51
107.56
107.58
107.6
107.63
107.65
107.70
107.72
107.77
107.8
107.84
107.87
107.90
107.98
108.0
108.04
108.07
108.10
108.17
108.2
108.22
108.28
108.34
108.38
108.4
1 0
1 0
1 0
1 0
1 0
2 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
2 0
2 0
1 0
1 0
1 0
2 0
1 0
1 0
1 0
1 0
2 0
2 0
2 0

Fine to c. gr. ss, f.u. foresets

CLASTIC CORE LOGGING FORM

Location: Maybelle River
Date: January 2003
Drill hole: MR-47
Reported Core Interval: 108.4 - 109.01 m
Fm./Strat. Unit Manitou Falls Formation

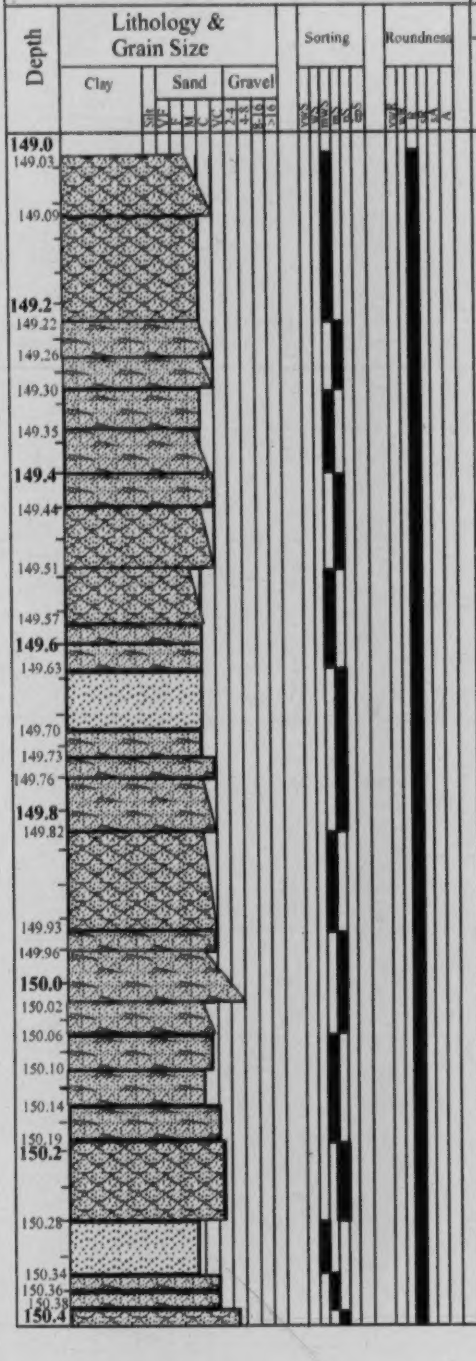

Depth
Lithology & Grain Size
Clay
Sand
Gravel
Silt
VF
F
M
C
VC
2-4
4-8
8-16
>16
Sorting
vwS
wS
mwS
mS
pS
vpS
Roundness
vwR
wR
R
sR
sA
A
Clast
% Qtz
% Rock frags.
MTG
% Pebbles
108.4
108.43
108.46
108.53
108.57
108.6
108.65
108.70
108.73
108.8
108.82
108.85
108.89
108.97
109.0
109.01
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
1 0
2 0
1 0

Comments

Fine to m. gr. ss, f.u. foresets.

CLASTIC CORE LOGGING FORM

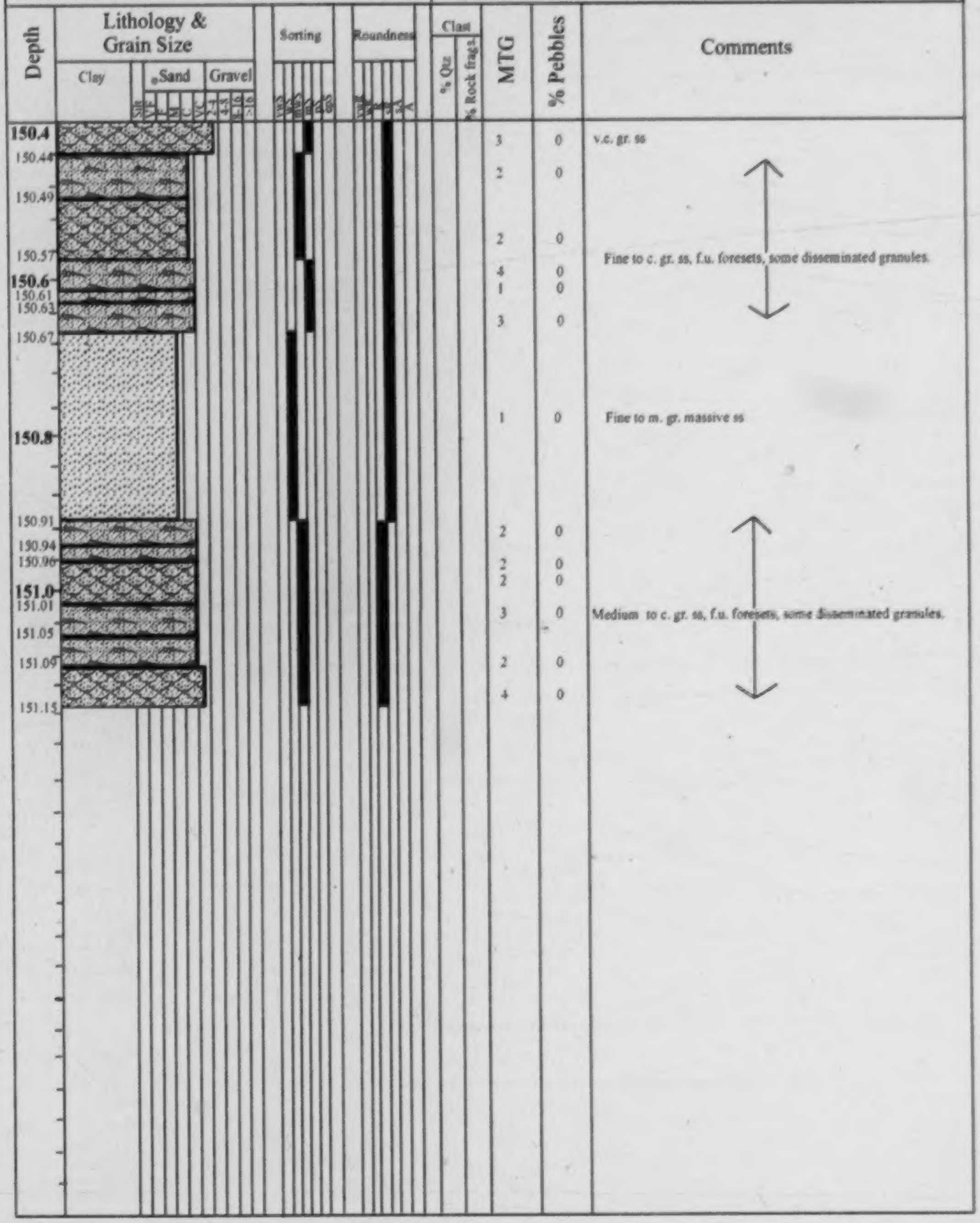
Location: Maybelle River	Date: January 2003	Drill hole: MR-47
Reported Core Interval: 149.0 - 150.4 m	Fm./Strat. Unit Manitou Falls Formation	


Depth
Lithology & Grain Size
Clay
Silt
Sand
VF
F
M
C
VC
Gravel
Sorting
Roundness
149.0
149.2
149.4
149.6
149.8
150.0
150.2
150.4

Depth	% Qtz	% Rock frags.	MTG	% Pebbles	Comments
149.03			2	0	
149.09			1	0	
149.22			1	0	
149.26			2	0	
149.30			2	0	
149.35			1	0	
149.4			2	0	
149.44			2	0	
149.51			1	0	
149.57			1	0	Fine to c. gr. ss. f.u. foresets, some disseminated granules.
149.6			1	0	
149.63			2	0	Medium gr. massive ss.
149.70			1	0	
149.73			2	0	
149.76			2	0	
149.82			2	0	
149.93			2	0	
149.96			5	0	
150.02			2	0	
150.06			2	0	
150.10			3	0	
150.14			2	0	
150.19			4	0	
150.28			1	0	Medium gr. massive ss.
150.34			2	0	
150.36			2	0	
150.38					
150.4					

CLASTIC CORE LOGGING FORM

Location: Maybelle River	Date: January 2003	Drill hole: MR-47
Reported Core Interval: 150.4 - 151.15 m	Fm./Strat. Unit Manitou Falls Formation	


Depth
Lithology & Grain Size
Clay
Sand
Gravel
Sorting
Roundness
Clast
% Qtz
% Rock frags
MTG
% Pebbles
Comments
150.4
150.44
150.49
150.57
150.6
150.61
150.63
150.67
150.8
150.91
150.94
150.96
151.0
151.01
151.05
151.09
151.15
3 0
2 0
2 0
4 0
1 0
3 0
1 0
2 0
2 0
2 0
3 0
2 0
4 0

v.c. gr. ss

Fine to c. gr. ss, f.u. foresets, some disseminated granules.

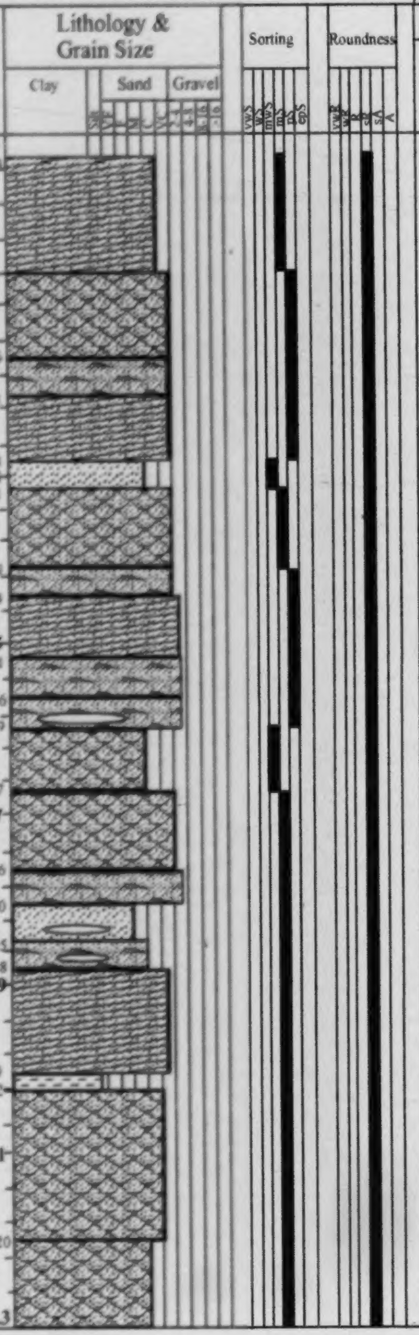
Fine to m. gr. massive ss

Medium to c. gr. ss, f.u. foresets, some disseminated granules.

CLASTIC CORE LOGGING FORM

Location: Maybelle River | Date: January 2003 | Drill hole: MR-47

Reported Core Interval: 158.9 - 160.3 m | Fm./Strat. Unit Manitou Falls Formation


Lithology & Grain Size
Clay
Sand
Gravel
Sorting
vwS
wS
mwS
mS
pS
vpS
Roundness
vwR
wR
R
sR
sA
A

Depth	% Qtz	% Rock frags.	MTG	% Pebbles	Comments
158.9					
158.91			2	0	
159.06			5	0	
159.1					
159.16			3	0	
159.21			3	0	
159.28			1	0	Coarse gr. massive ss.
159.3					
159.31			5	0	
159.41			3	0	
159.44			3	0	
159.5					
159.51			4	0	Mediume to v.c. gr. ss, f.u. foresets, disseminated granules.
159.56			3	0	Intraclast at base of bed.
159.59			4	0	
159.67			4	0	
159.7					
159.76			2	0	
159.80			2	0	Fine gr. massive ss, intraclast at base.
159.85			2	0	Intraclast at base of bed.
159.88			3	0	
159.9					
160.0			1	0	Clay bed.
160.02			2	0	
160.1					
160.20			4	0	
160.3					

CLASTIC CORE LOGGING FORM

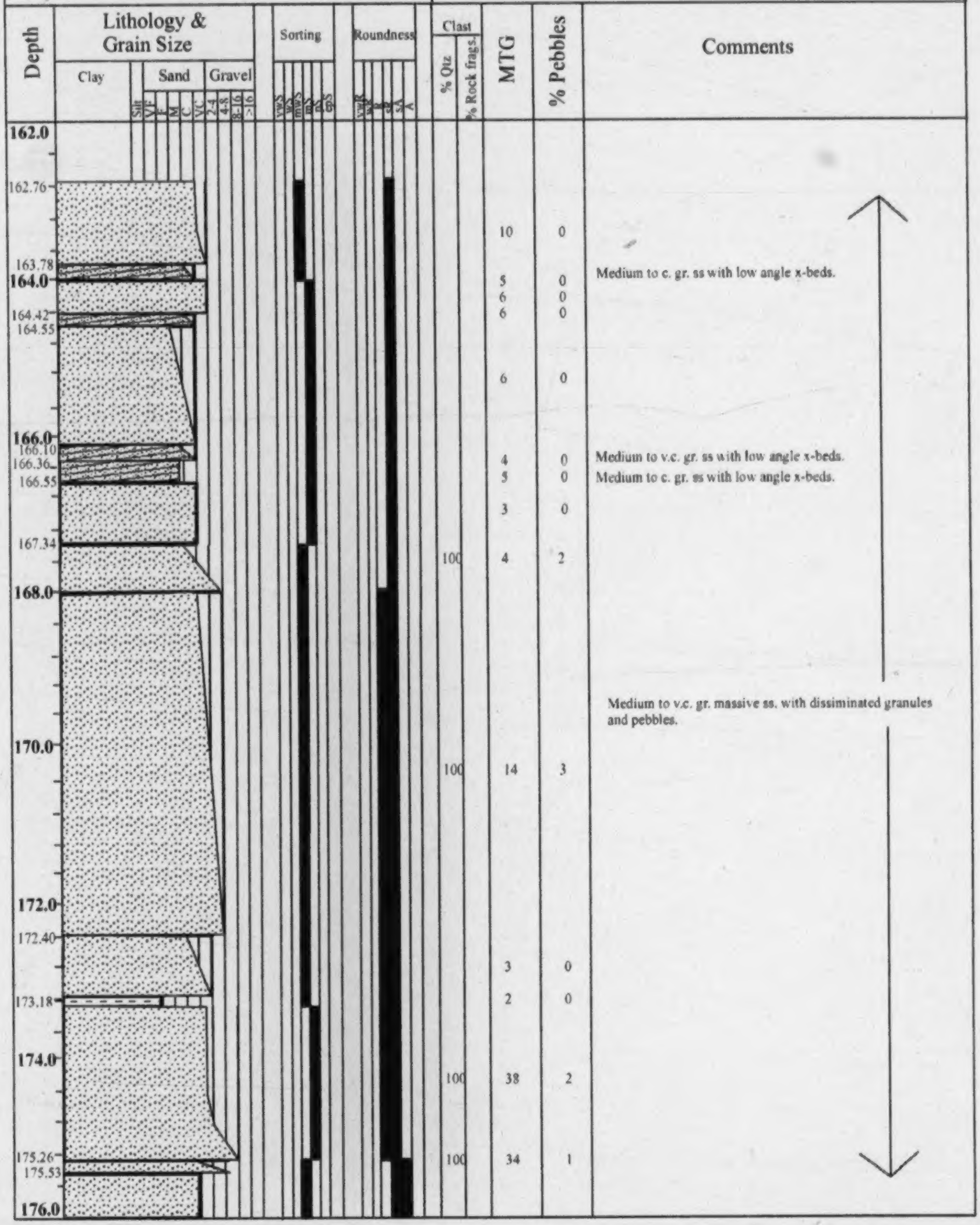
Location: Maybelle River

Date: January 2003

Drill hole: MR-47

Reported Core Interval: 162.76 - 176.0 m

Fm./Strat. Unit Fair Point Formation


Depth
Lithology & Grain Size
Clay
Sand
Gravel
Silt
VF
F
M
C
VC
2-4
4-8
8-16
>16
Sorting
vwS
wS
mwS
mS
pS
vpS
Roundness
vwR
wR
R
sR
sA
A
Clast
% Qtz
% Rock frags.
MTG
% Pebbles
Comments
162.0
162.76
163.78
164.0
164.42
164.55
166.0
166.10
166.36
166.55
167.34
168.0
170.0
172.0
172.40
173.18
174.0
175.26
175.53
176.0
10
0
5
0
6
0
6
0
6
0
4
0
5
0
3
0
100
4
2
100
14
3
3
0
2
0
100
38
2
100
34
1

Medium to c. gr. ss with low angle x-beds.

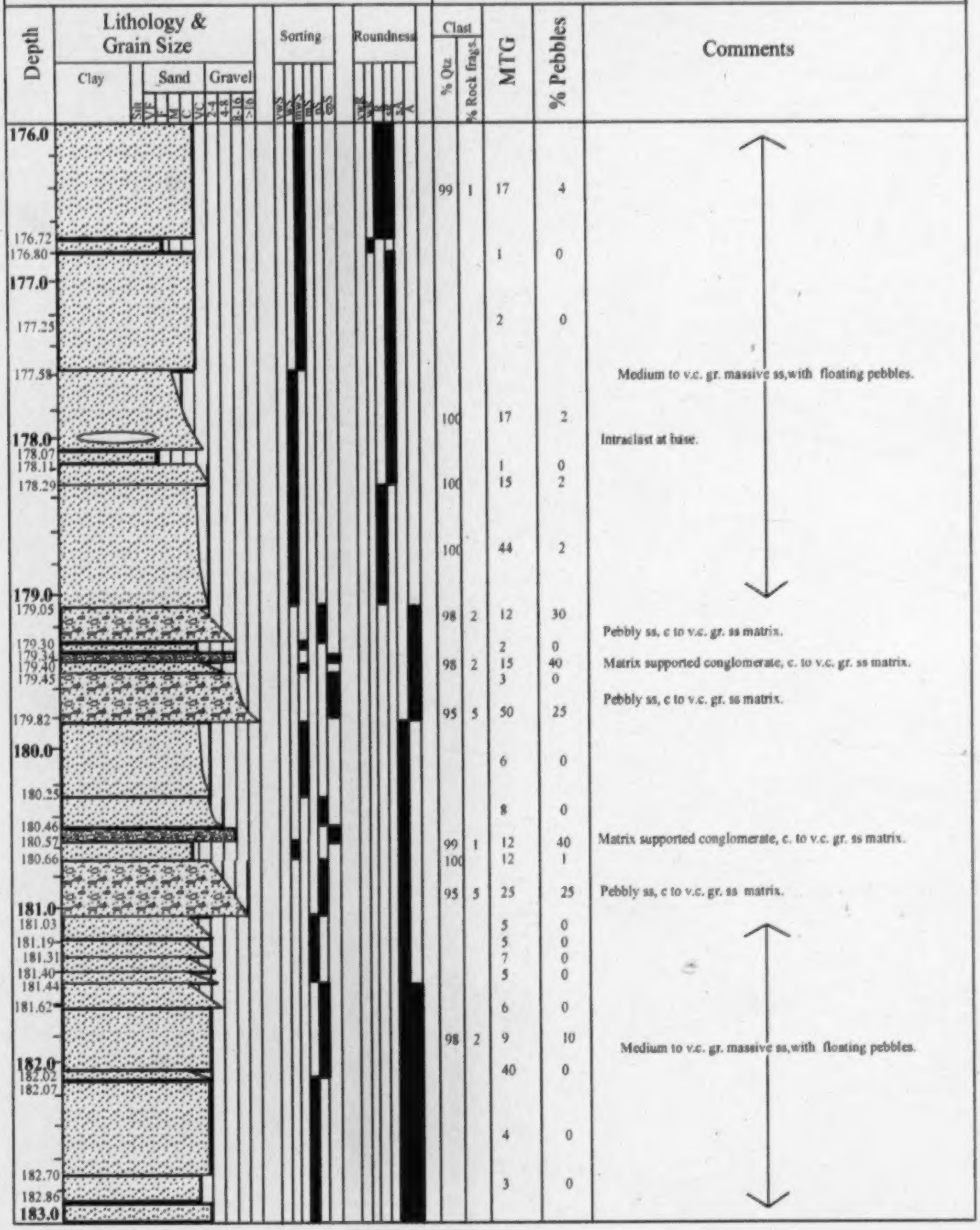
Medium to v.c. gr. ss with low angle x-beds.

Medium to c. gr. ss with low angle x-beds.

Medium to v.c. gr. massive ss. with disseminated granules and pebbles.

CLASTIC CORE LOGGING FORM

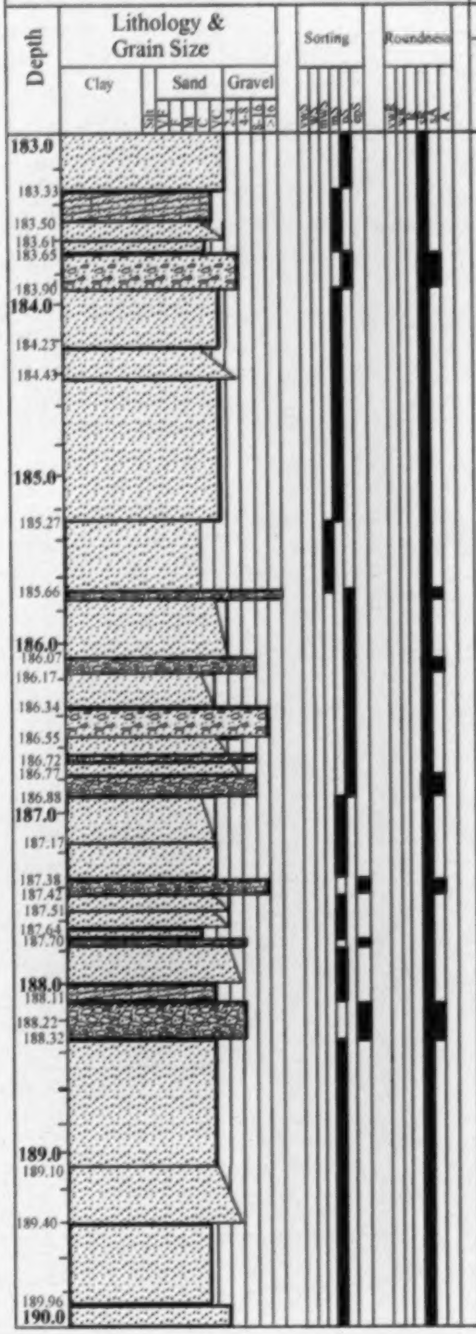
Location: Maybelle River	Date: January 2003	Drill hole: MR-47
Reported Core Interval: 176.0 - 183.0 m	Fm./Strat. Unit Fair Point Formation	


Depth
Lithology & Grain Size
Clay
Silt
VF
F
M
C
VC
Sand
Gravel
2-4
4-8
8-16
>16
Sorting
Roundness
176.0
176.72
176.80
177.0
177.25
177.58
178.0
178.07
178.11
178.29
179.0
179.05
179.30
179.34
179.40
179.45
179.82
180.0
180.25
180.46
180.57
180.66
181.0
181.03
181.19
181.31
181.40
181.44
181.62
182.0
182.02
182.07
182.70
182.86
183.0

Clast % Qtz	Clast % Rock frags	MTG	% Pebbles	Comments
99	1	17	4	
		1	0	
		2	0	
				Medium to v.c. gr. massive ss,with floating pebbles.
100		17	2	
				Intraclast at base.
		1	0	
100		15	2	
100		44	2	
98	2	12	30	
				Pebbly ss, c to v.c. gr. ss matrix.
		2	0	
98	2	15	40	Matrix supported conglomerate, c. to v.c. gr. ss matrix.
		3	0	
				Pebbly ss, c to v.c. gr. ss matrix.
95	5	50	25	
		6	0	
		8	0	
99	1	12	40	Matrix supported conglomerate, c. to v.c. gr. ss matrix.
100		12	1	
95	5	25	25	Pebbly ss, c to v.c. gr. ss matrix.
		5	0	
		5	0	
		7	0	
		5	0	
		6	0	
98	2	9	10	Medium to v.c. gr. massive ss,with floating pebbles.
		40	0	
		4	0	
		3	0	

CLASTIC CORE LOGGING FORM

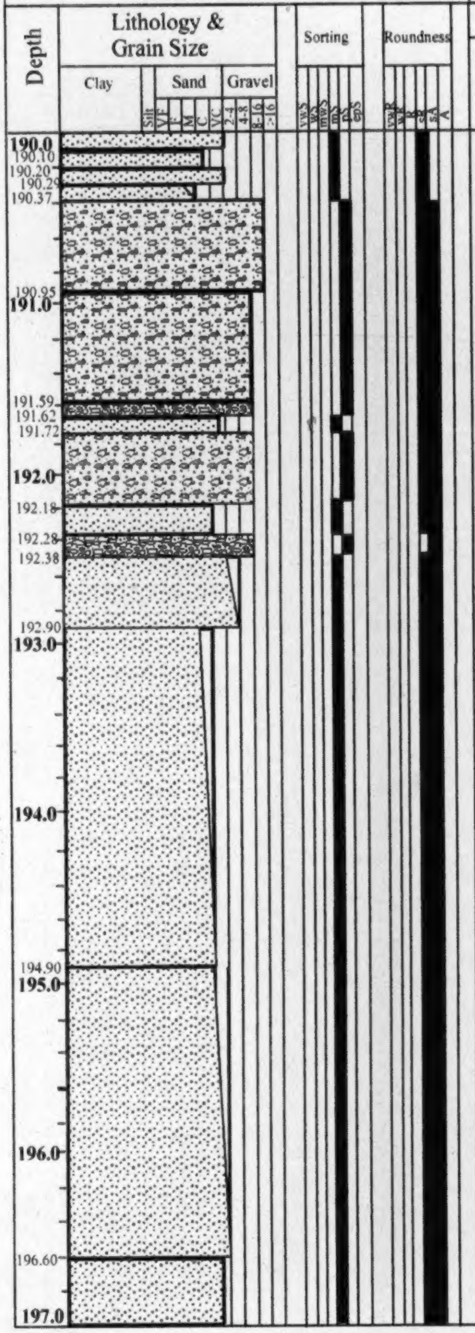
Location: Maybelle River	Date: January 2003	Drill hole: MR-47
Reported Core Interval: 183.0 - 190.0 m	Fm./Strat. Unit Fair Point Formation	


Depth
Lithology & Grain Size
Clay
Sand
Gravel
Silt
Sorting
Roundness
183.0
183.33
183.50
183.61
183.65
183.90
184.0
184.23
184.43
185.0
185.27
185.66
186.0
186.07
186.17
186.34
186.55
186.72
186.77
186.88
187.0
187.17
187.38
187.42
187.51
187.64
187.70
188.0
188.11
188.22
188.32
189.0
189.10
189.40
189.96
190.0

Clast % Qtz	Clast % Rock frags	MTG	% Pebbles	Comments
100		12	15	
		3	0	Coarse gr. ss. low angle x-beds, floating granules.
		2	0	
		2	0	
98	2	12	10	Very coarse gr. pebbly ss
99	1	8	5	
99	1	8	2	
				Coarse to v.c. gr. massive ss, with floating granules and pebbles.
95	5	29	12	
		3	0	
				Gl layer.
100		5	2	
95	5	15	35	Matrix supported conglomerate, c. to v.c. gr. ss matrix
100		12	3	
90	10	30	40	Very coarse gr. pebbly ss
		2	0	
		3	0	Matrix supported conglomerate, c. to v.c. gr. ss matrix
95	5	13	35	Matrix supported conglomerate, c. to v.c. gr. ss matrix
		2	0	Coarse to v.c. gr. massive ss, with floating granules and pebbles.
		2	0	
90	10	70	45	Matrix supported conglomerate, c. to v.c. gr. ss matrix
		4	0	
99	1	14	2	
		3	0	
95	5	10	90	Gl layer.
100		5	2	
				Coarse gr. ss, low angle x-beds, floating granules.
		3	0	
85	15	65	55	Matrix supported conglomerate, c. to v.c. gr. ss matrix
		3	0	
				Coarse to v.c. gr. massive ss. with floating granules and pebbles.
90	10	8	5	
		2	0	
90	10	10	5	

CLASTIC CORE LOGGING FORM

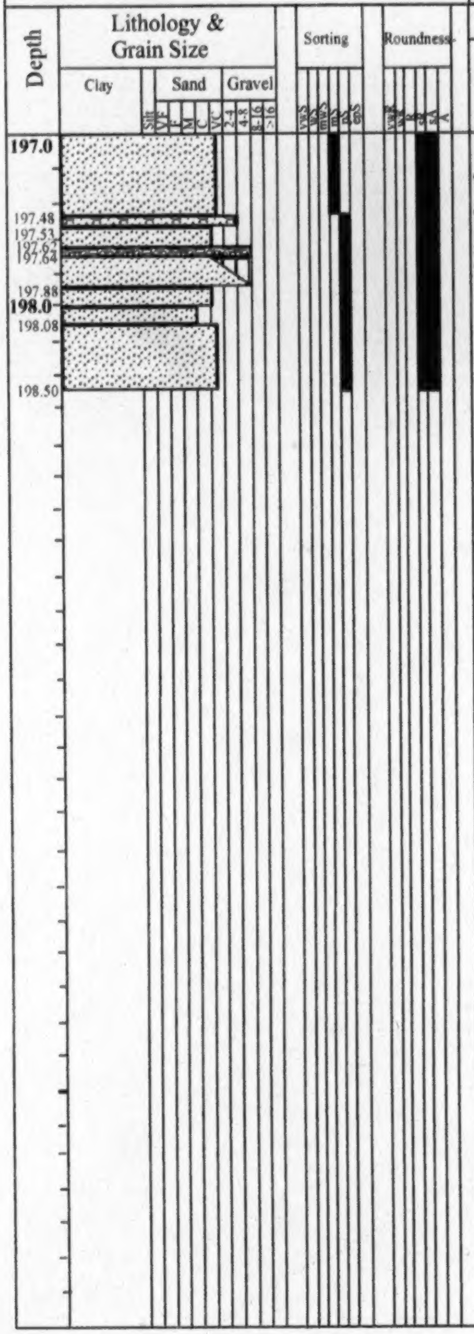
Location: Maybelle River
Date: January 2003
Drill hole: MR-47
Reported Core Interval: 190.0 - 197.0 m
Fm./Strat. Unit Fair Point Formation


Depth
Lithology & Grain Size
Clay
Silt
VF
F
M
C
VC
Sand
Gravel
2-4
4-8
8-16
>16
Sorting
vwS
wS
mwS
mS
pS
vpS
Roundness
vwR
wR
R
sR
sA
A
190.0
190.10
190.20
190.29
190.37
190.95
191.0
191.59
191.62
191.72
192.0
192.18
192.28
192.38
192.90
193.0
194.0
194.90
195.0
196.0
196.60
197.0

Depth	Clast % Qtz	Clast % Rock frags.	MTG	% Pebbles	Comments
190.0	100		10	2	Fine to v.c. gr. massive ss, with floating granules and pebbles.
190.10			3	0	
190.20	100		8	2	
190.29			3	0	
190.37	90	10	32	25	Pebbly ss with c. gr. ss matrix.
190.95	90	10	28	25	Pebbly ss with v.c. gr. ss matrix.
191.59	85	15	28	45	Matrix supported conglomerate, v.c. gr. ss matrix.
191.62	98	2	11	2	
191.72	90	10	13	25	Pebbly ss with c. gr. ss matrix.
192.18	99	1	5	2	
192.28	85	15	15	45	Matrix supported conglomerate, .c. gr. ss matrix.
192.38	98	2	6	5	Coarse to v.c. gr. massive ss, with floating granules and pebbles.
192.90	98	2	5	5	
194.90	98	2	28	10	
196.60	95	5	10	2	

CLASTIC CORE LOGGING FORM

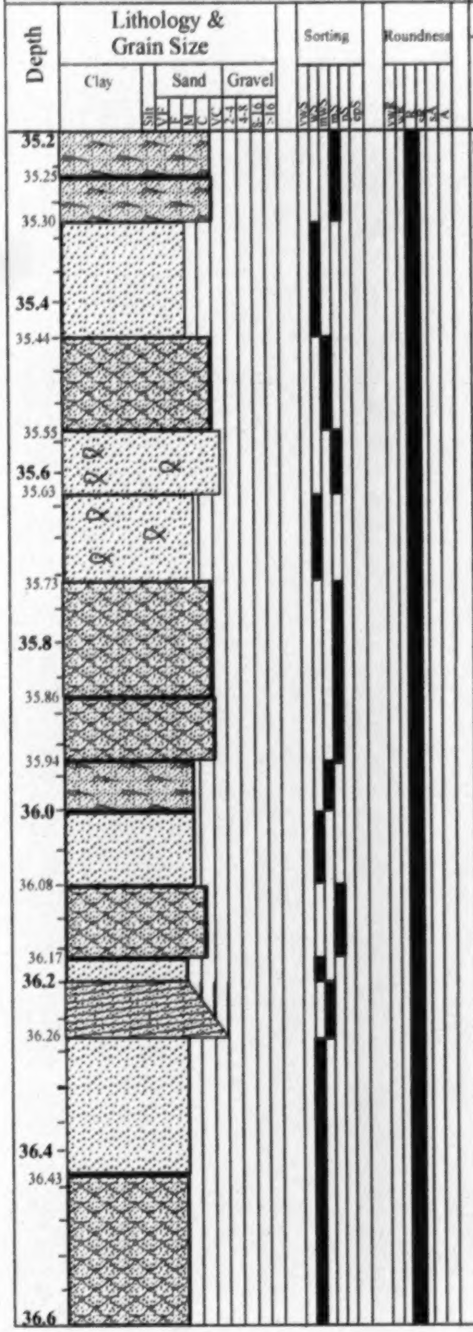
Location: Maybelle River	Date: January 2003	Drill hole: MR-47
Reported Core Interval: 197.0 - 198.5 m	Fm./Strat. Unit Fair Point Formation	


Depth
Lithology & Grain Size
Clay
Sand
Gravel
Silt
VF
F
M
C
VC
2-4
4-8
8-16
>16
Sorting
vwS
wS
mwS
mS
pS
vpS
Roundness
wR
R
sR
sA
A
197.0
197.48
197.53
197.62
197.64
197.88
198.0
198.08
198.50

Clast % Qtz	Clast % Rock frags.	MTG	% Pebbles	Comments
95	5	10	2	Coarse to v.c. gr. massive ss, with floating pebbles.
90	10	6	30	Pebbly ss with c. to v.c. gr. ss matrix.
		4	0	
85	5	17	80	G1 layer.
98	2	7	5	↕
98	2	7	2	
		1	0	Coarse gr. to granule sized massive ss with floating pebbles.
95	5	24	10	

CLASTIC CORE LOGGING FORM

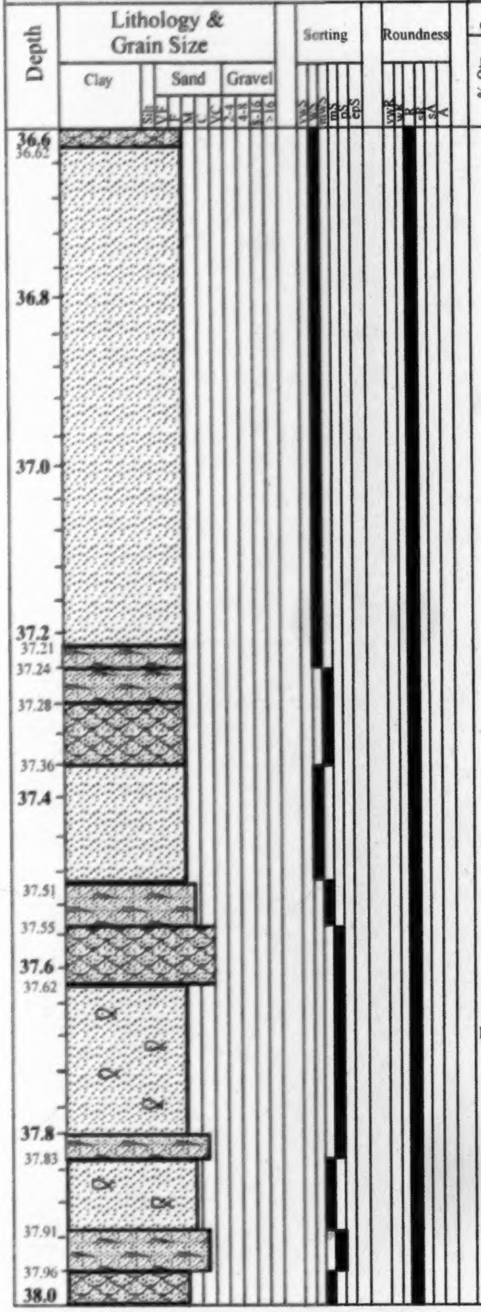
Location: Maybelle River	Date: January 2003	Drill hole: MR-60
Reported Core Interval: 35.2 - 36.6 m	Fm./Strat. Unit Lazenby Lake Formation	


Depth
Lithology & Grain Size
Clay
Sand
Gravel
Sorting
Roundness
35.2
35.25
35.30
35.4
35.44
35.55
35.6
35.63
35.73
35.8
35.86
35.94
36.0
36.08
36.17
36.2
36.26
36.4
36.43
36.6

Depth	Clast % Qtz	Clast % Rock frags.	MTG	% Pebbles	Comments
35.2	100		11	2	Floating granules.
35.25	100		5	1	Floating granules.
35.30			3	0	Floating granules.
35.44	100		5	1	Medium grianed with coarse grains. Floating granules.
35.55	100		6	3	Coarse grained with v.c. and floating granules.
35.63			3	0	
35.73	100		5	3	Coarse gr. ss, from f. to v.c. grained. Floating granules.
35.86			3	0	Coarse gr. ss, from f. to v.c. grained. Floating granules.
35.94	100		6	1	
36.0			1	0	
36.08			4	0	Fine to v.c. gr. ss, with floating granules.
36.17	100		10	1	
36.2			3	0	f.u. from v.c.gr. to f. gr.
36.26			2	0	See possible horizontal bedding?
36.43	100		4	1	Floating graules.

CLASTIC CORE LOGGING FORM

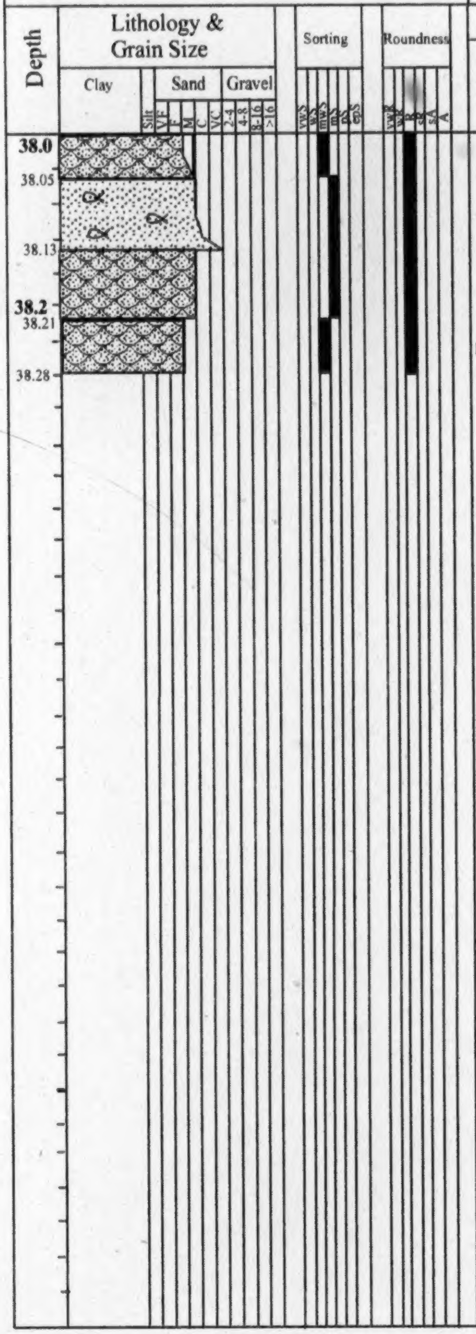
Location: Maybelle River	Date: January 2003	Drill hole: MR-60
Reported Core Interval: 36.6 - 38.0 m	Fm./Strat. Unit Lazenby Lake Formation	



Depth	% Qtz	% Rock frags.	MTG	% Pebbles	Comments
36.62			2	0	Fine gr. ss. appearse massive, minor floating granules.
37.21			2	0	
37.24			2	0	
37.28			2	0	
37.36			3	0	Massive appearing with floating granules.
37.51			3	0	Floating granules.
37.55			2	0	Fine to v.c. gr. ss.
37.62	100		6	2	Fine gr. ss with coarse beds and floating granules.
37.8			3	0	
37.83			2	0	
37.91			4	0	
37.96			1	0	

CLASTIC CORE LOGGING FORM

Location: Maybelle River
Date: January 2003
Drill hole: MR-60
Reported Core Interval: 38.0 - 38.28 m :
Fm./Strat. Unit Lazenby Lake Formation

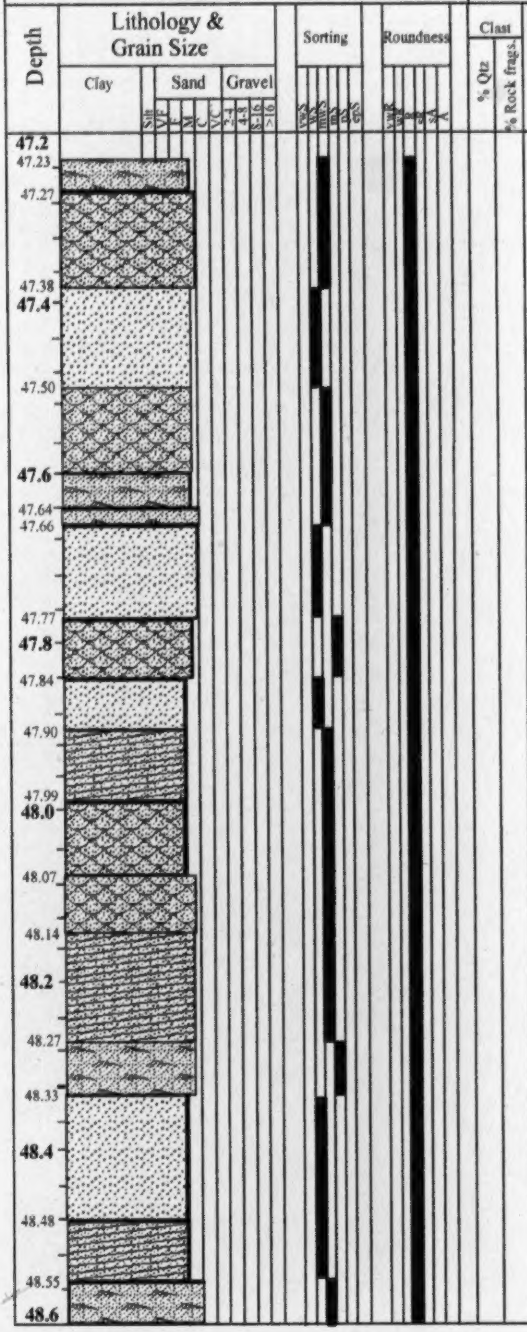

Depth
Lithology &
Grain Size
Clay
Sand
Gravel
Silt
VF
F
M
C
VC
2-4
4-8
8-16
>16
Sorting
vwS
wS
mwS
mS
pS
vpS
Roundness
vwR
wR
R
sR
sA
A
38.0
38.05
38.13
38.2
38.21
38.28

Depth	Clast % Qtz	Clast % Rock frags	MTG	% Pebbles	Comments
38.0 - 38.05			1	0	
38.05 - 38.13			4	0	Very coarse at base into fine grained at top.
38.13 - 38.2			4	0	Fine to c. gr. with floating granules.
38.21 - 38.28	100		5	2	Fine to c. gr. with floating granules.

CLASTIC CORE LOGGING FORM

Location: Maybelle River | Date: January 2003 | Drill hole: MR-60

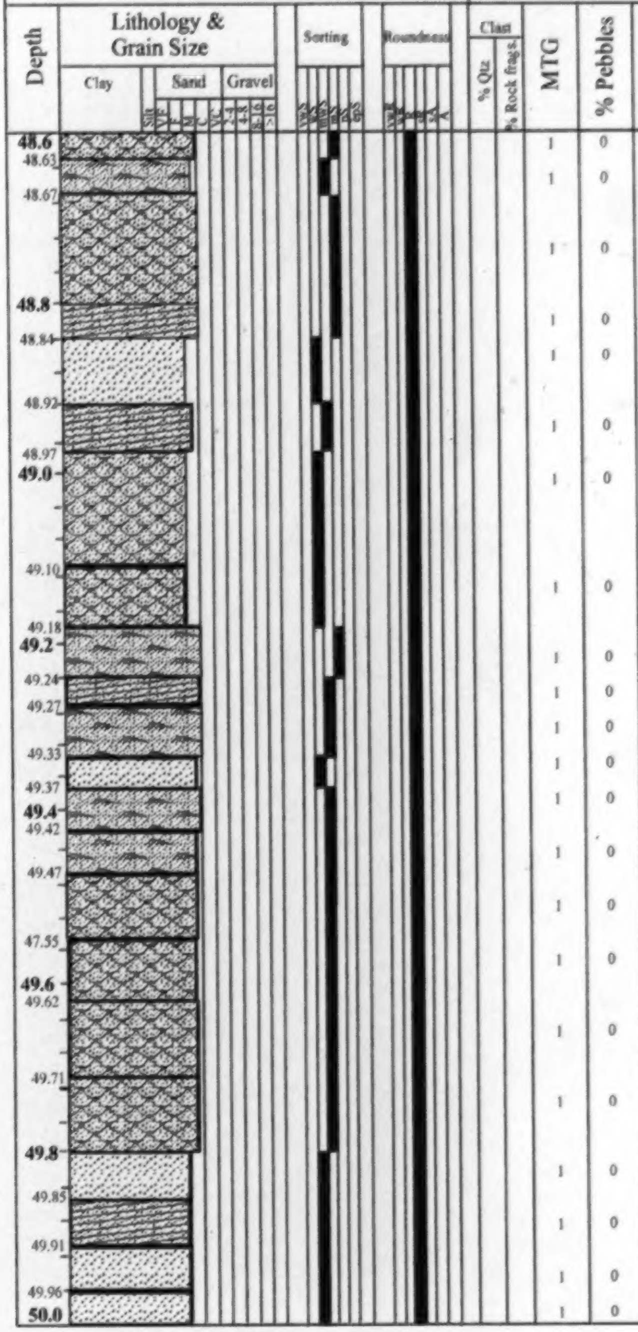
Reported Core Interval: 47.2 - 48.6 m | Fm./Strat. Unit Manitou Falls Formation


Depth
Lithology & Grain Size
Clay
Sand
Gravel
Silt
Sorting
Roundness
Clast
% Qtz
% Rock frags.
47.2
47.23
47.27
47.38
47.4
47.50
47.6
47.64
47.66
47.77
47.8
47.84
47.90
47.99
48.0
48.07
48.14
48.2
48.27
48.33
48.4
48.48
48.55
48.6

Depth	MTG	% Pebbles	Comments
47.2			f.u. forsets.
47.23	1	0	
47.27	1	0	
47.38	1	0	
47.50	1	0	
47.6	1	0	f.u. forsets.
47.64	1	0	f.u. forsets.
47.66	1	0	
47.77	1	0	f.u. forsets.
47.84	1	0	
47.90	1	0	
47.99	1	0	f.u. forsets.
48.07	1	0	f.u. forsets.
48.14	1	0	
48.27	1	0	f.u. forsets.
48.33	1	0	
48.48	1	0	
48.55	1	0	
48.6			

CLASTIC CORE LOGGING FORM

Location: Maybelle River	Date: January 2003	Drill hole: MR-60
Reported Core Interval: 48.6 - 50.0 m	Fm./Strat. Unit Manitou Falls Formation	

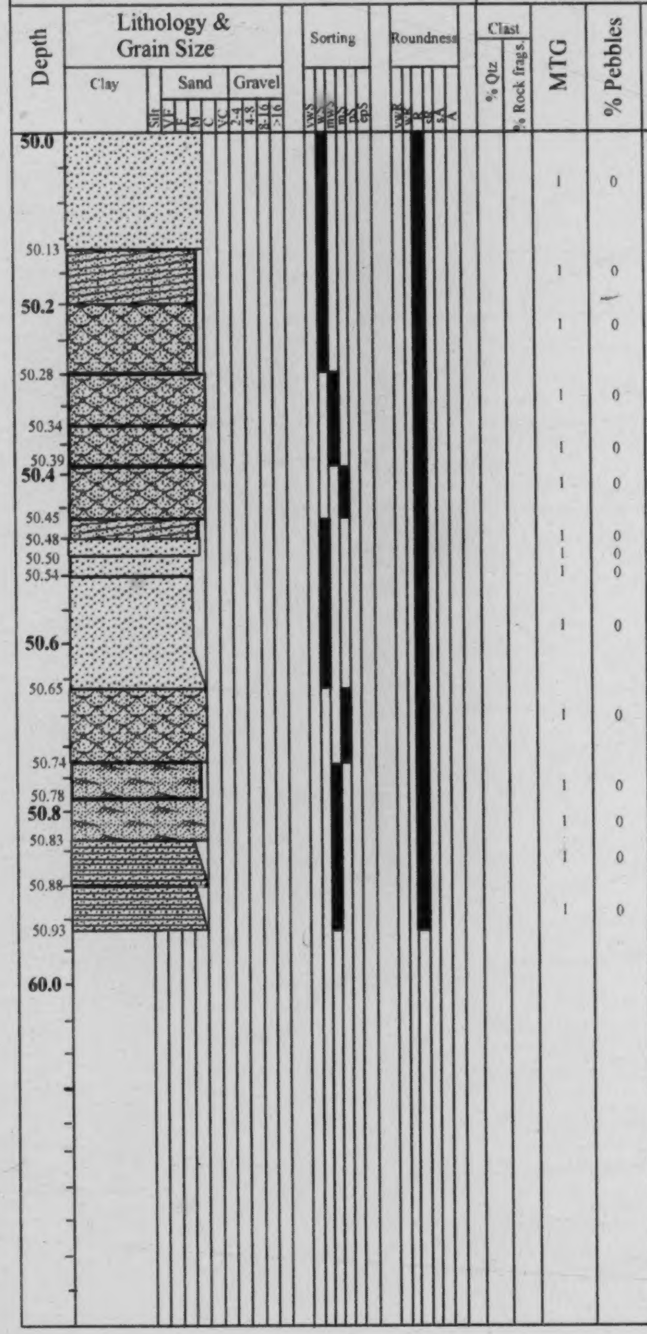


Depth
Lithology & Grain Size
Clay
Silt
Sand
Gravel
Sorting
Roundness
Clast
% Qtz
% Rock frags.
48.6
48.63
48.67
48.8
48.84
48.92
48.97
49.0
49.10
49.18
49.2
49.24
49.27
49.33
49.37
49.4
49.42
49.47
47.55
49.6
49.62
49.71
49.8
49.85
49.91
49.96
50.0

Depth	MTG	% Pebbles	Comments
48.6	1	0	
48.63	1	0	
48.67	1	0	f. to m. gr. ss, f.u. forsets
48.8	1	0	
48.84	1	0	
48.92	1	0	
48.97	1	0	Cryptic cross-bedding, has a slight massive appearance.
49.10	1	0	Cryptic cross-bedding, has a slight massive appearance.
49.18	1	0	f.u. forsets
49.24	1	0	
49.27	1	0	f.u. forsets
49.33	1	0	
49.37	1	0	
49.42	1	0	↑
49.47	1	0	
47.55	1	0	f. to m. gr. ss, f.u. forsets
49.62	1	0	
49.71	1	0	↓
49.8	1	0	
49.85	1	0	
49.91	1	0	
49.96	1	0	

CLASTIC CORE LOGGING FORM

Location: Maybelle River
Date: January 2003
Drill hole: MR-60
Reported Core Interval: 50.0 - 50.93 m
Fm./Strat. Unit Manitou Falls Formation


Depth
Lithology & Grain Size
Clay
Sand
Gravel
Silt
VF
F
M
C
VC
2-4
4-8
8-16
>16
Sorting
vwS
wS
mwS
mS
pS
vpS
Roundness
vwR
wR
R
SR
SA
A
Clast
% Qtz
% Rock frags.
MTG
% Pebbles
50.0
50.13
50.2
50.28
50.34
50.39
50.4
50.45
50.48
50.50
50.54
50.6
50.65
50.74
50.78
50.8
50.83
50.88
50.93
60.0
1
0
1
0
1
0
1
0
1
0
1
0
1
0
1
0
1
0
1
0
1
0
1
0
1
0
1
0
1
0
1
0

Comments

Fine to m. gr. ss, f.u. forsets.

Massive appearance, low angle x-beds at base.

Horizontal bedding.

Horizontal bedding.

CLASTIC CORE LOGGING FORM

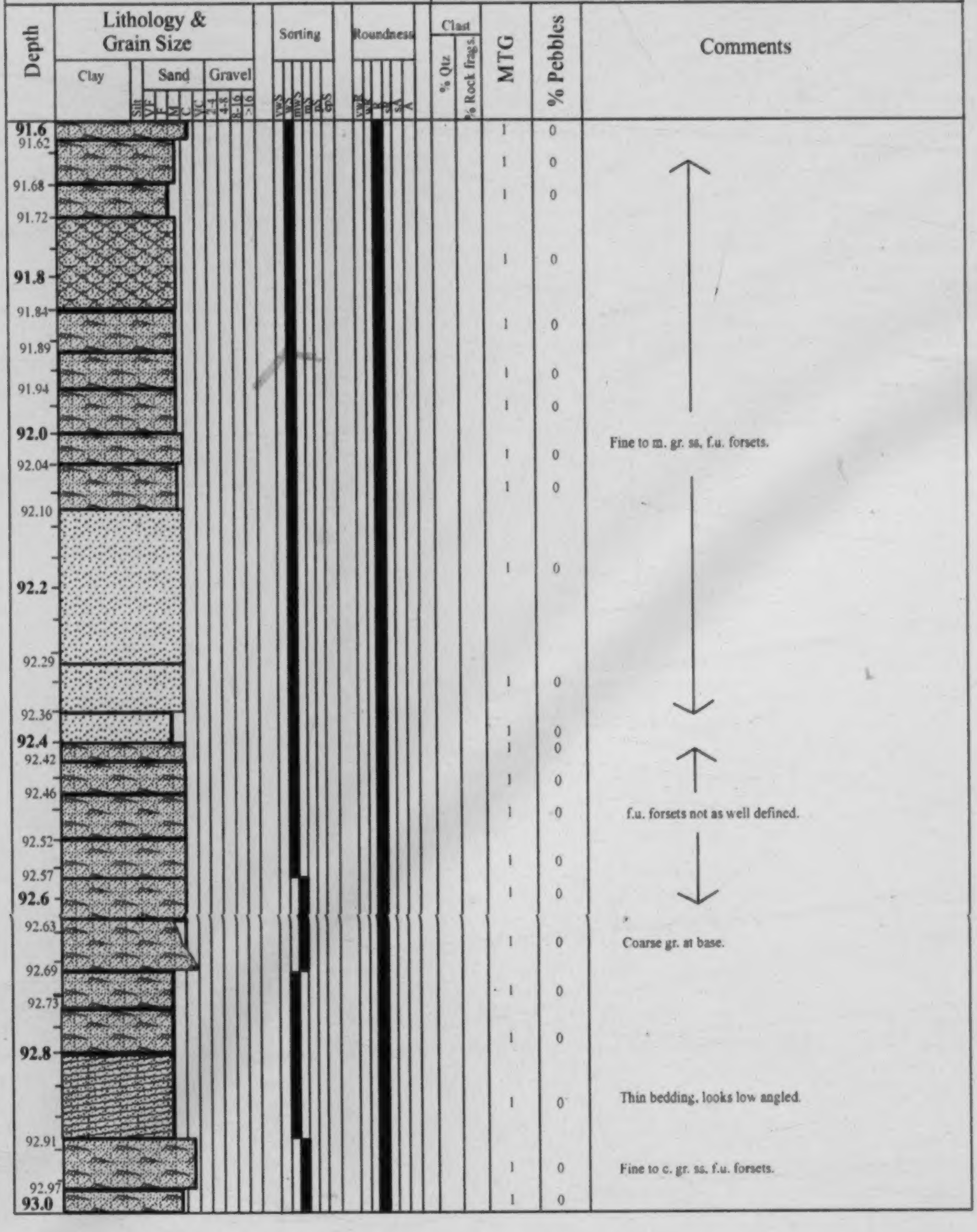
Location: Maybelle River

Date: January 2003

Drill hole: MR-60

Reported Core Interval: 91.6 - 93.0 m

Fm./Strat. Unit Manitou Falls Formation


Depth
Lithology & Grain Size
Clay
Silt
VF
F
M
C
VC
Sand
Gravel
2-4
4-8
8-16
>16
Sorting
Roundness
Clast
% Qtz
% Rock frags.
MTG
% Pebbles
Comments
91.6
91.62
91.68
91.72
91.8
91.84
91.89
91.94
92.0
92.04
92.10
92.2
92.29
92.36
92.4
92.42
92.46
92.52
92.57
92.6
92.63
92.69
92.73
92.8
92.91
92.97
93.0

Fine to m. gr. ss. f.u. forsets.

f.u. forsets not as well defined.

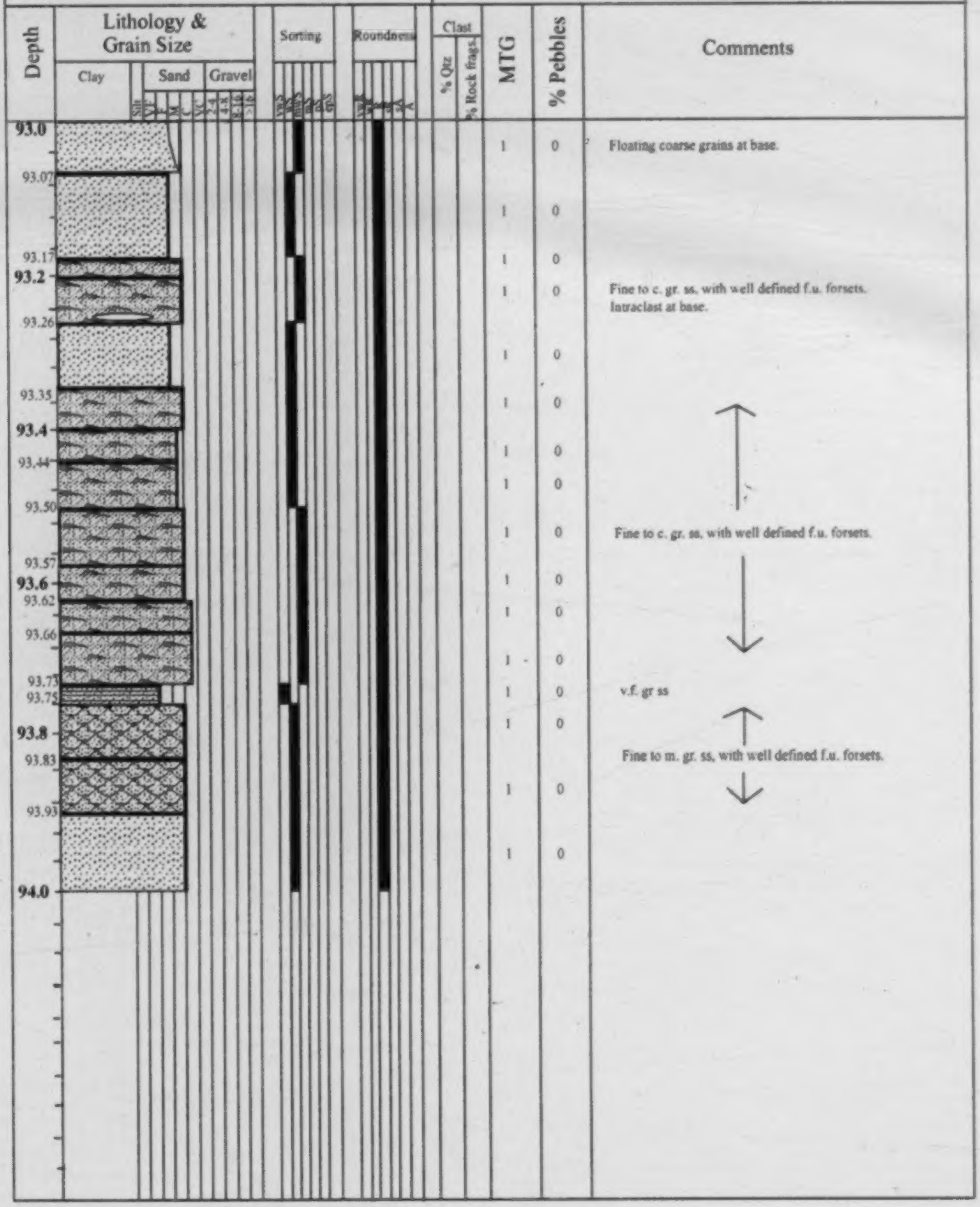
Coarse gr. at base.

Thin bedding, looks low angled.

Fine to c. gr. ss. f.u. forsets.

CLASTIC CORE LOGGING FORM

Location: Maybelle River	Date: January 2003	Drill hole: MR-60
Reported Core Interval: 93.0 - 94.0 m	Fm./Strat. Unit Manitou Falls Formation	



Floating coarse grains at base.

Fine to c. gr. ss, with well defined f.u. forsets.
Intraclast at base.

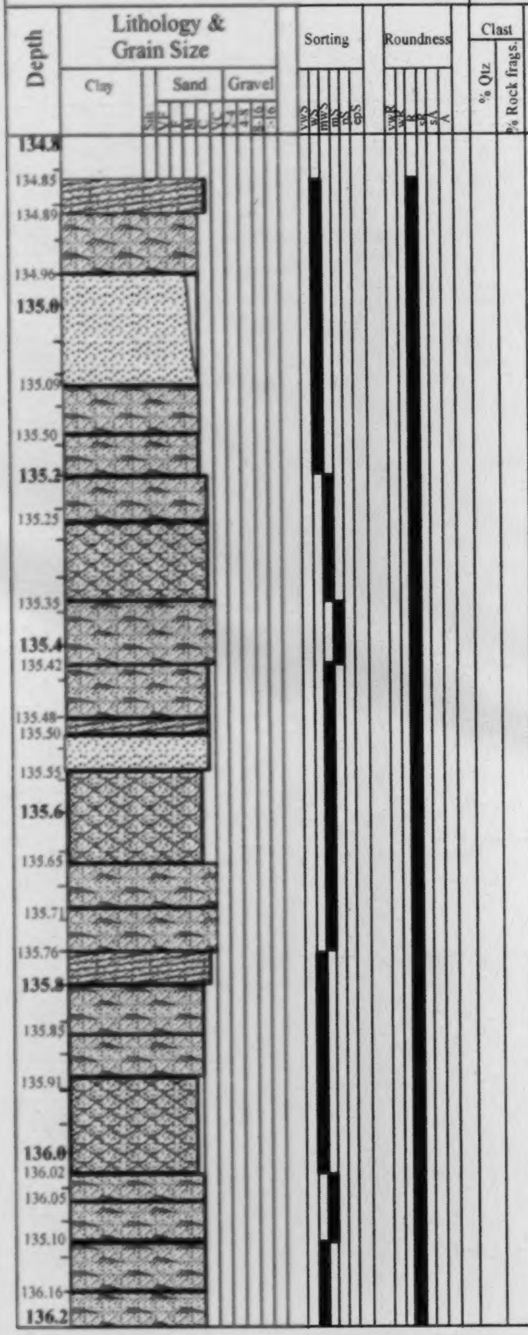
Fine to c. gr. ss, with well defined f.u. forsets.

v.f. gr ss

Fine to m. gr. ss, with well defined f.u. forsets.

CLASTIC CORE LOGGING FORM

Location: Maybelle River	Date: January 2003	Drill hole: MR-60
Reported Core Interval: 134.85 - 136.2 m	Fm./Strat. Unit Manitou Falls Formation	


Depth
Lithology & Grain Size
Clay
Silt
VF
F
M
C
VC
Sand
Gravel
2-4
4-8
8-16
>16
Sorting
vwS
wS
mwS
mS
pS
vpS
Roundness
vwR
wR
R
sR
sA
A
Clast
% Qtz
% Rock frags.
134.8
134.85
134.89
134.96
135.0
135.09
135.50
135.2
135.25
135.35
135.4
135.42
135.48
135.50
135.55
135.6
135.65
135.71
135.76
135.8
135.85
135.91
136.0
136.02
136.05
135.10
136.16
136.2

Depth	MTG	% Pebbles	Comments
134.85	2	0	
134.89	1	0	
134.96	1	0	
135.09	1	0	Fine to m. gr. ss, f.u. foresets.
135.50	1	0	
135.2	1	0	
135.25	2	0	Fine to c. gr. ss, f.u. foresets, floating granules..
135.35	2	0	
135.42	2	0	
135.48	1	0	
135.50	2	0	
135.55	4	0	
135.65	2	0	Fine to c. gr. ss, f.u. foresets, floating granules..
135.71	4	0	
135.76	2	0	
135.8	1	0	
135.85	2	0	
135.91	2	0	Fine to m. gr. ss, f.u. foresets.
136.02	1	0	
136.05	2	0	
135.10	1	0	
136.16	1	0	

CLASTIC CORE LOGGING FORM

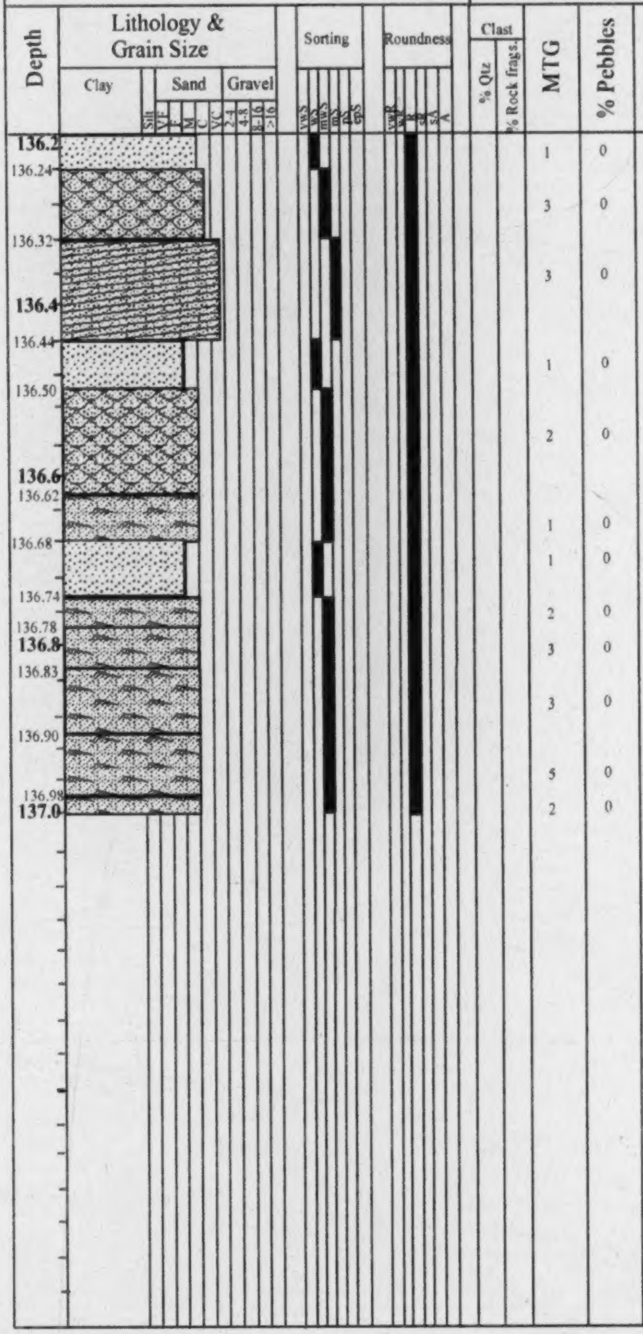
Location: Maybelle River

Date: January 2003

Drill hole: MR-60

Reported Core Interval: 136.2 - 137.0 m

Fm./Strat. Unit Manitou Falls Formation


Depth
Lithology & Grain Size
Clay
Sand
Gravel
Silt
VF
F
M
C
VC
2-4
4-8
8-16
>16
Sorting
Roundness
Clast
% Qtz
% Rock frags.
MTG
% Pebbles
136.2
136.24
136.32
136.4
136.44
136.50
136.6
136.62
136.68
136.74
136.78
136.8
136.83
136.90
136.98
137.0
1 0
3 0
3 0
1 0
2 0
1 0
1 0
2 0
3 0
3 0
5 0
2 0

Comments

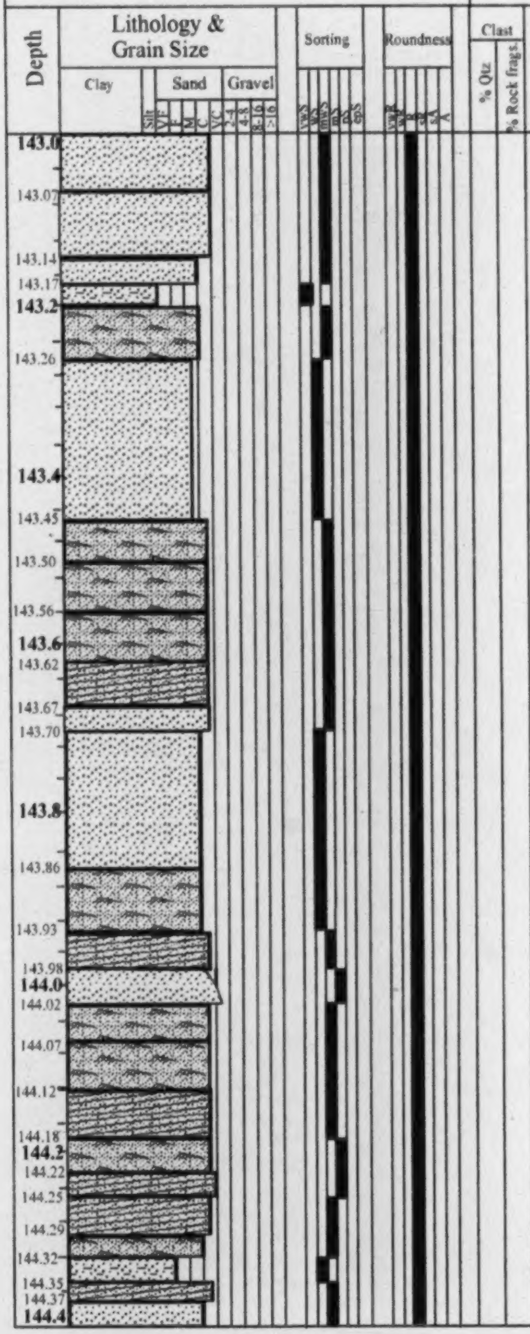
Coarse gr. up to v.c. gr to granules, flaoting granules, low angle cross-beds.

Fine to c. gr. ss up to v.c. gr., flaoting granules, f.u. foresets.

CLASTIC CORE LOGGING FORM

Location: Maybelle River | Date: January 2003 | Drill hole: MR-60

Reported Core Interval: 143.0 - 144.4 m | Fm./Strat. Unit Manitou Falls Formation


Depth
Lithology & Grain Size
Clay
Silt
Sand
VF
F
M
C
VC
Gravel
2-4
4-8
8-16
>16
Sorting
Roundness
Clast
% Qtz
% Rock frags.
143.0
143.07
143.14
143.17
143.2
143.26
143.4
143.45
143.50
143.56
143.6
143.62
143.67
143.70
143.8
143.86
143.93
143.98
144.0
144.02
144.07
144.12
144.18
144.2
144.22
144.25
144.29
144.32
144.35
144.37
144.4

MTG	% Pebbles	Comments
1	0	
4	0	Coarse to v.c. gr. ss, massive appearance.
4	0	
1	0	
1	0	
1	0	
2	0	
2	0	Medium to v.c. gr. ss, f.u. foresets.
1	0	
1	0	
1	0	
1	0	Fine to m. gr. ss, massive appearance
1	0	Fine to m. gr. ss, f.u. forsets.
2	0	
2	0	
1	0	
1	0	Medium to c. gr. ss, f.u. forsets.
1	0	
2	0	
2	0	Medium to c. gr. ss, f.u. forsets.
2	0	Medium to c. gr. ss, f.u. forsets.
1	0	v.f. gr. ss with clay drapes.
1	0	
1	0	
1	0	

CLASTIC CORE LOGGING FORM

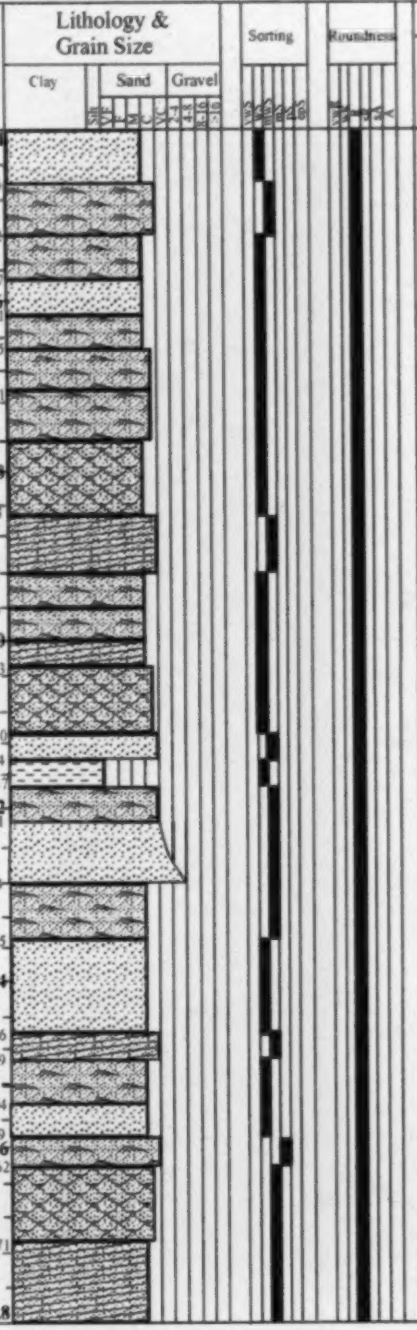
Location: Maybelle River

Date: January 2003

Drill hole: MR-60

Reported Core Interval: 144.4 - 145.8 m

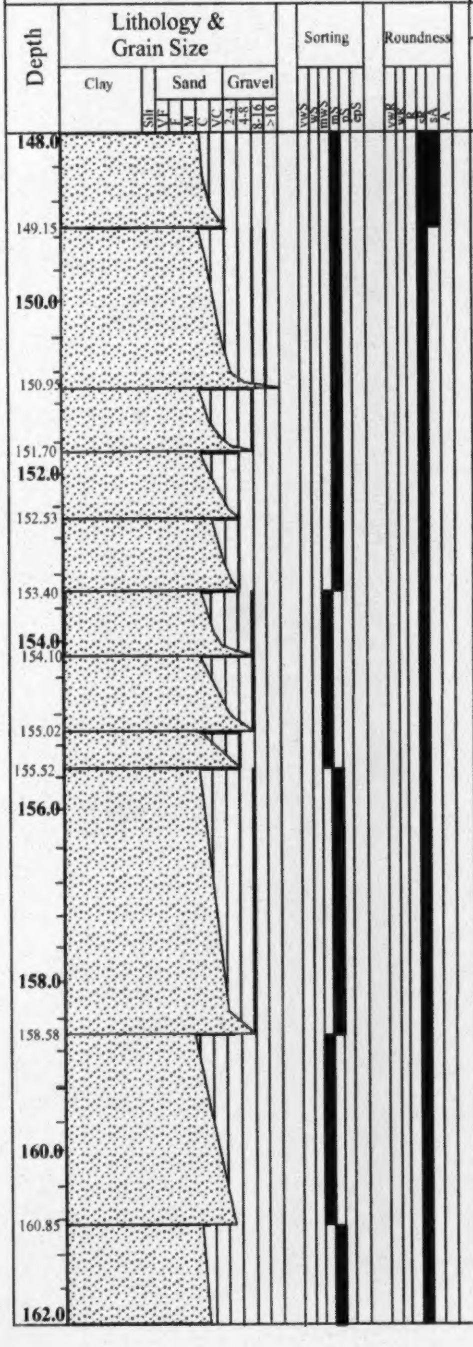
Fm./Strat. Unit Manitou Falls Formation



Depth	% Qtz	% Rock frags.	MTG	% Pebbles	Comments
144.4			1	0	
144.46			2	0	
144.52			1	0	
144.57			1	0	
144.6 / 144.61			1	0	
144.65			1	0	
144.71			2	0	↑ Medium to c. gr. ss, f.u. foresets.
144.76			1	0	↓
144.85			2	0	
144.92			1	0	Medium to c. gr. ss, f.u. foresets.
144.96			1	0	
145.0			1	0	
145.03			1	0	
145.10			3	0	
145.14			1	0	Red silt to v.f. gr. ss bed.
145.17 / 145.2			1	0	
145.21			2	0	
145.28			1	0	Medium to c. gr. ss, f.u. foresets.
145.35 / 145.4			1	0	
145.46			2	0	
145.49			1	0	
145.54			1	0	
145.59 / 145.6	100		6	5	Coarse gr. ss with granules.
145.62			2	0	Medium to v.c. gr. ss, f.u. foresets.
145.71			1	0	
145.8					

CLASTIC CORE LOGGING FORM

Location: Maybelle River	Date: January 2003	Drill hole: MR-60
Reported Core Interval: 148.0 - 162.0 m	Fm./Strat. Unit Fair Point Formation	


Depth
Lithology & Grain Size
Clay
Sand
Gravel
Silt
VF
F
M
C
VC
2-4
4-8
8-16
>16
Sorting
vwS
wS
mwS
mS
pS
vpS
Roundness
vwR
wR
R
sR
sA
A
148.0
149.15
150.0
150.95
151.70
152.0
152.53
153.40
154.0
154.10
155.02
155.52
156.0
158.0
158.58
160.0
160.85
162.0

Clast % Qtz	Clast % Rock frags.	MTG	% Pebbles	Comments
98	2	10	2	
98	2	10	2	
		32		Angular pebble at base.
99	1	10	3	
99	1	5	1	
98	2	5	2	
98	2	10	2	
98	2	7	3	Medium to v.c. gr. ss, f.u., appears massive, floating granules and pebbels. Possible x-beds.
96	4	8	2	
90	10	25	10	
100		17	0	
100		2	0	

CLASTIC CORE LOGGING FORM

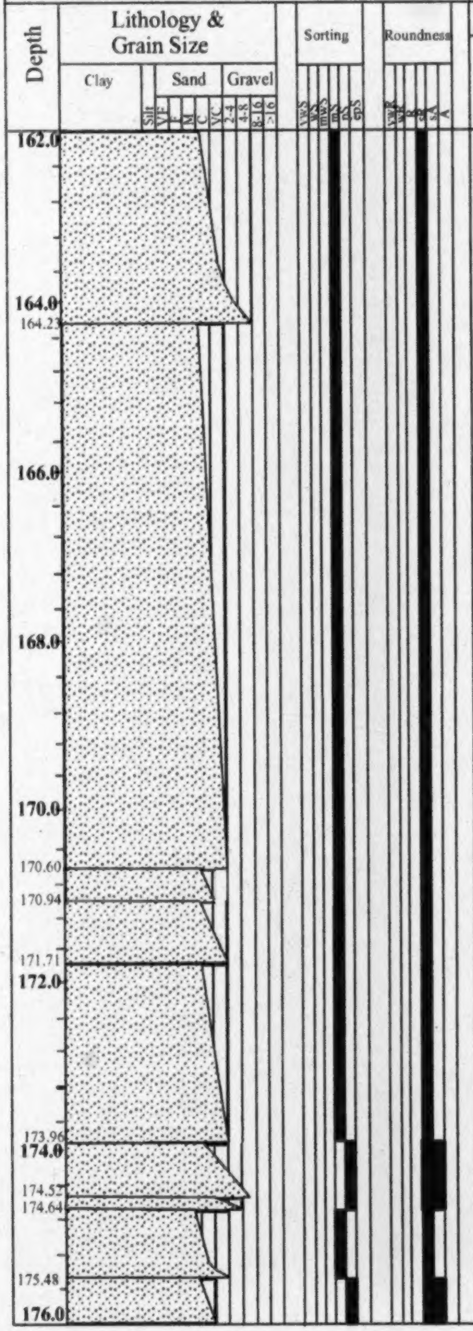
Location: Maybelle River

Date: January 2003

Drill hole: MR-60

Reported Core Interval: 162.0 - 176.0 m

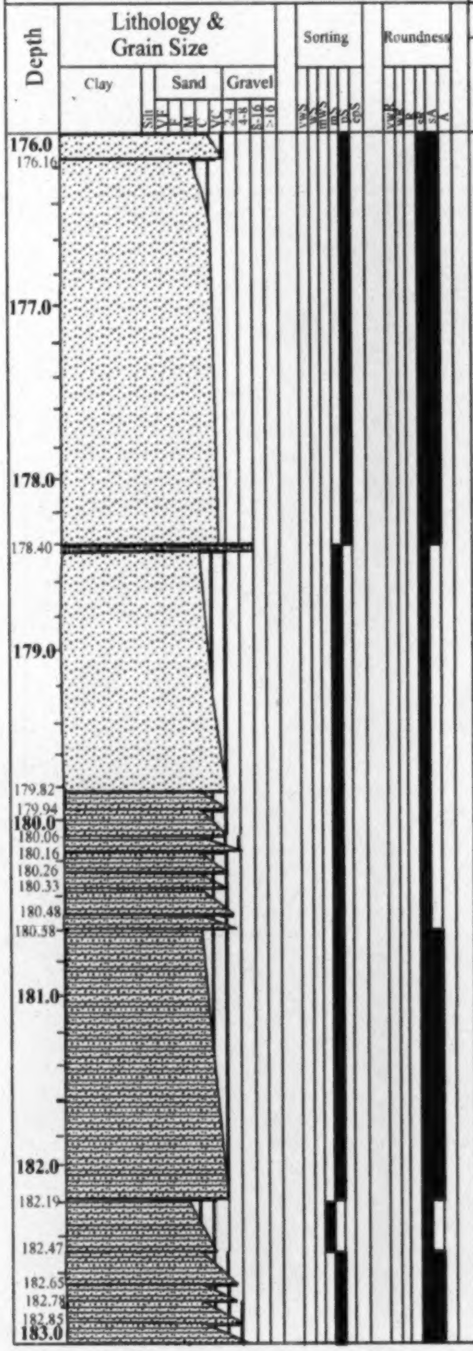
Fm./Strat. Unit Fair Point Formation


Depth
Lithology & Grain Size
Clay
Silt
Sand
VF
F
M
C
VC
Gravel
2-4
4-8
8-16
>16
Sorting
VWS
WS
mWS
MS
PS
VPS
Roundness
VWR
WR
R
SR
SA
A
162.0
164.0
164.23
166.0
168.0
170.0
170.60
170.94
171.71
172.0
173.96
174.0
174.52
174.64
175.48
176.0

Clast % Qtz	Clast % Rock frags.	MTG	% Pebbles	Comments
98	2	11	2	Medium to v.c. gr. ss, overall f.u., massive appearance, floating granules and pebbles, possible x-bedding.
100		18	2	
100		2	2	
98	2	10	2	
95	5	23	2	
98	2	8	5	
99	1	6	2	
98	2	14	5	
95	5	46	10	

CLASTIC CORE LOGGING FORM

Location: Maybelle River
Date: January 2003
Drill hole: MR-60
Reported Core Interval: 176.0 - 183.0 m
Fm./Strat. Unit Fair Point Formation

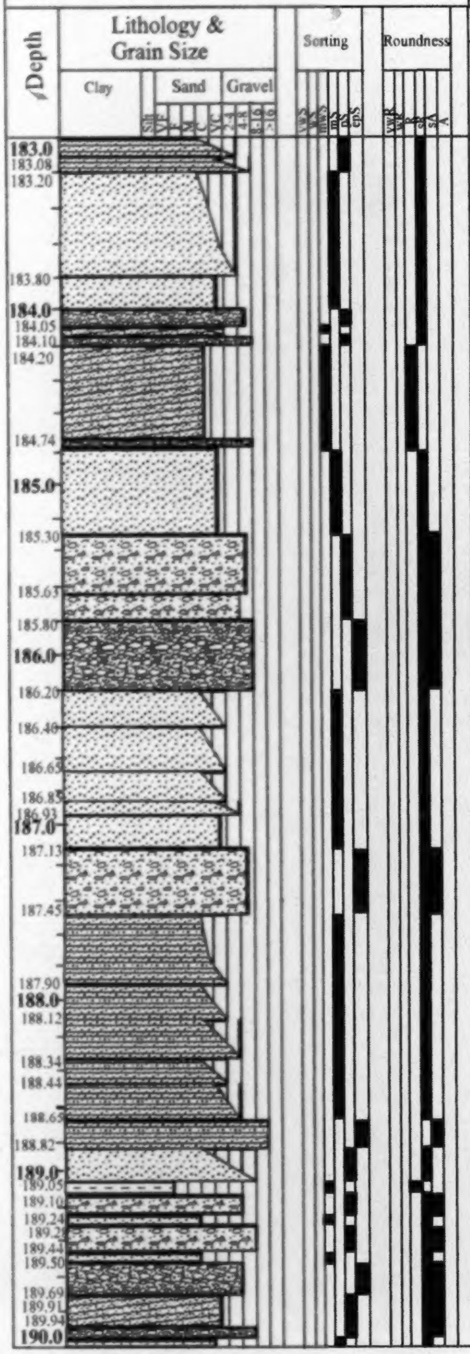

Depth
Lithology & Grain Size
Clay
Sand
Gravel
Silt
VF
F
M
C
VC
2-4
4-8
8-16
>16
Sorting
Roundness
176.0
176.16
177.0
178.0
178.40
179.0
179.82
179.94
180.0
180.06
180.16
180.26
180.33
180.48
180.58
181.0
182.0
182.19
182.47
182.65
182.78
182.85
183.0

Clast % Qtz	Clast % Rock frags.	MTG	% Pebbles	Comments
95	5	30	10	
				Coarse to v.c. gr.ss. overall f.u., floating pebbles, appears massive.
100		24	80	Gl layer
96	4	26	10	
90	10	5	1	
99	1	23	2	
98	2	6	2	
		3	0	f.u. beds from m. to v.c. gr.-granule, bedding looks horizontal, floating pebbles.
		4	0	
		4	0	
98	2	10	2	
		4	0	
95	5	20	5	Overall f.u., floating pebbles, possible horizontal bedding, made up of individuall f.u. bed (2 to 4 cm)..
		2	0	
98	2	8	5	f.u. beds from m. to v.c. gr.-granule, bedding looks horizontal, floating pebbles.
99	1	5	3	
98	2	8	10	
98	2	9	15	

CLASTIC CORE LOGGING FORM

Location: Maybelle River | Date: January 2003 | Drill hole: MR-60

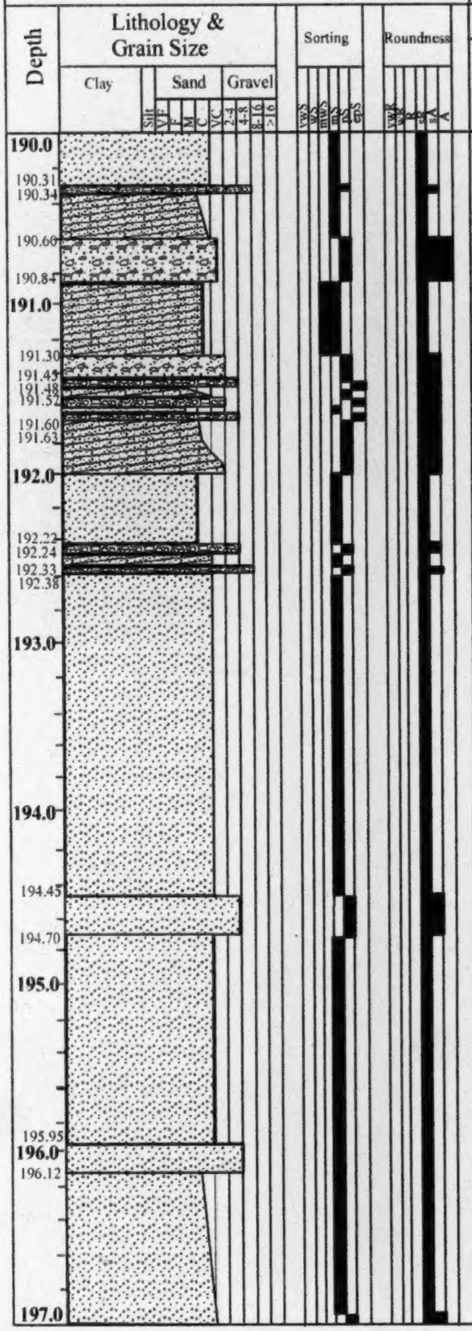
Reported Core Interval: 183.0 - 190.0 m | Fm./Strat. Unit Fair Point Formation



Clast % Qtz	Clast % Rock frags.	MTG	% Pebbles	Comments
98	2	7	3	
90	10	10	20	Medium gr. to granule, horizontal bedding, overall f.u.. floating pebbles
98	2	8	6	Floating pebbles.
100		7	2	
98	2	9	35	
100		2	0	
95	5	8	50	
100		2	0	
100		8	80	G1 layer.
97	3	7	10	Floating pebbles.
95	5	23	20	Granule to sm. pebble pebbly ss, massive, c. gr. ss matrix.
98	2	8	10	
95	5	11	40	Granule to sm. pebble sized matrix supported conglomerate, c. gr. ss matrix, massive.
98	2	7	3	↑
98	2	6	3	
98	2	7	5	Medium to c. gr. ss, f.u., granules at base, floating pebbles.
98	2	8	5	↓
98	2	8	5	
98	2	10	20	Granule to sm. pebble pebbly ss, massive, c. gr. ss matrix.
98	2	7	2	
98	2	6	2	↑
98	2	9	3	Granule to v.c. gr. ss at base into m. gr. ss at top, f.u., possible horizontal bedding, floating pebbles
98	2	5	3	
98	2	11	5	↓
90	10	65	45	
90	10	25	15	Floating pebbles.
		1	0	
90	10	12	20	Granule to sm. pebble pebbly ss, massive, c. gr. ss matrix.
		1	0	
95	5	12	25	Granule to sm. pebble pebbly ss, massive, c. gr. ss matrix.
		1	0	
90	10	7	50	
95	5	7	5	
98	2	10	35	

CLASTIC CORE LOGGING FORM

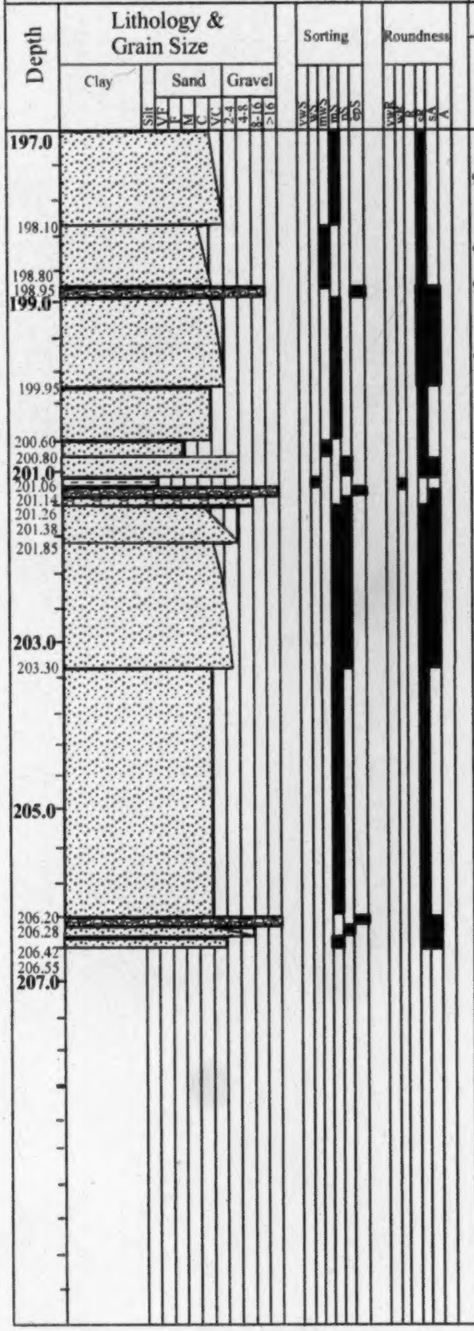
Location: Maybelle River
Date: January 2003
Drill hole: MR-60
Reported Core Interval: 190.0 - 197.0 m
Fm./Strat. Unit Fair Point Formation


Depth
Lithology & Grain Size
Clay
Silt
Sand
VF
F
M
C
VC
Gravel
2-4
4-8
8-16
>16
Sorting
vwS
wS
mwS
mS
pS
vpS
Roundness
vwR
wR
R
sR
sA
A
190.0
190.31
190.34
190.60
190.84
191.0
191.30
191.45
191.48
191.52
191.60
191.63
192.0
192.22
192.24
192.33
192.38
193.0
194.0
194.45
194.70
195.0
195.95
196.0
196.12
197.0

Clast % Qtz	% Rock frags.	MTG	% Pebbles	Comments
		4	2	Medium to c. gr. ss. floating granule and pebbles, f.u.
95	5	12	40	
95	5	4	4	Medium to c. gr. ss, some floating granules. looks low angle.
80	20	41	20	Pebbly ss with possible x-beds with f.u. foresets, c. pebbles and granules at base of foresets.
98	2	4	2	Medium to c. gr. ss. some floating granules, looks low angle.
95	5	5	20	Pebbly ss with possible x-beds with f.u. foresets, c. pebbles and granules at base of foresets.
95	5	4	35	
95	5	4	10	
90	10	5	70	
		1	0	G1 layer
90	10	8	80	Medium to c. gr. ss, some floating granules. looks low angle.
98	2	4	2	
		2	0	Medium to c. gr. ss. floating granule and pebbles, f.u.
90	10	10	40	
		3	1	
50	50	34	80	
99	1	7	3	Medium to c. gr. ss, floating granule and pebbles, f.u.
98	2	10	15	Ganule sized ss, more fine than pebble ss, flaoting pebbles
98	2	7	2	Medium to c. gr. ss, floating granule and pebbles, f.u.
90	10	21	15	Ganule sized ss, more fine than pebble ss. flaoting pebbles
98	2	10	4	Medium to c. gr. ss, floating granule and pebbles, f.u.

CLASTIC CORE LOGGING FORM

Location: Maybelle River	Date: January 2003	Drill hole: MR-60
Reported Core Interval: 197.0 - 206.55 m	Fm./Strat. Unit Fair Point Formation	


Depth
Lithology & Grain Size
Clay
Silt
Sand
VF
F
M
C
VC
Gravel
2-4
4-8
8-16
>16
Sorting
vwS
wS
mwS
mS
pS
vpS
Roundness
vwR
wR
R
sR
sA
A
197.0
198.10
198.80
198.95
199.0
199.95
200.60
200.80
201.0
201.06
201.14
201.26
201.38
201.85
203.0
203.30
205.0
206.20
206.28
206.42
206.55
207.0

Clast: % Qtz	Clast: % Rock frags.	MTG	% Pebbles	Comments
98	2	10	4	Medium to v.c. gr. ss, f.u., appears massive, floating granules and pebbles.
98	2	15	4	
90	10	35	35	Matrix supported conglomerate, c. gr. ss matrix, massive.
90	10	18	7	Medium to v.c. gr. ss, f.u., appears massive, floating granules and pebbles.
98	2	35	4	
95	5	80	30	
90	10	40	15	
		1	0	Silt bed.
50	50	88	45	Matrix supported conglomerate, c. gr. ss matrix, massive.
95	5	45	20	
98	2	10	2	
98	2	24	4	Medium to v.c. gr. ss, f.u., appears massive, floating granules and pebbles.
99	1	18	2	
95	5	90	50	Matrix supported conglomerate, c. gr. ss matrix, massive.
95	5	35	25	
		14	1	FP/basement contact is sharp with a 50 degree angle.

APPENDIX 5 – Thin section descriptions

Thin section description: MR-35: 31.7_LzL
Percentage:
Clasts = 67
Matrix = 25
Cement = 3
Porosity = 5
Rock fabric: grain supported
Texture:
Grainsize: very fine sand (silt to fine grained)
Sorting: well sorted
Roundness: angular to rounded
Shape: equant
Textural maturity: mature
Style of packing: point contacts
Mineral composition:
qtz = 69
feld =
rock frag.=
mica = muscovite = 8
clay = illite = 10, kaolinite = 10
other = calcite = 2, pyroxene <1, pyrite = 1
Matrix:
Ave. size: fine, fine, very fine, very fine/fine, clay/very fine, clay
Sorting: poorly
Roundness: subrounded, subrounded, subrounded, angular, angular, subrounded
Shape: equant, equant, equant, bladed, bladed, equant
Percentages: pyrite = 2, calcite = 10, pyroxene = 1, muscovite = 27, illite = 30, kaolinite = 30
Rock fragments: none
Orientation of matrix: random, muscovite is aligned along veins or bedding
Cement: silica
Sedimentary structures: possible horizontal bedding with muscovite along base of beds.
Name: quartz arenite
Notes: High amount of clay in matrix, possible higher kaolinite than illite. Muscovite aligns along the base of beds or possible veins. May not be muscovite, has a higher order interference colour and doesn't look like it has bird's eye extinction. Bigger veins with calcite and pyrite (dark brown colour) aligning along them, these have high porosity which was not taken into account for the above percentages.
Hand Sample description:
Very fine grained sandstone. Horizontally bedded, bedding looks convoluted wavy layers. Pyrite fills along some layers. Orangy reddish colour with some cream coloured layers (due to bleaching?).

Thin section description: MR-35: 35.2_LzL
Percentage:
Clasts = 77
Matrix = 1
Cement = 20
Porosity = 2
Rock fabric: grain supported
Texture:
Grainsize: medium grained (fining upwards from fine to coarse)
Sorting: well sorted
Roundness: subrounded to well rounded
Shape: equant
Textural maturity: mature
Style of packing: point contacts
Mineral composition:
qtz = 98
feld =
rock frag.= 1
mica = <1

clay = illite = 1
other =

Matrix:
Ave. size: clay, very fine
Sorting: poorly
Roundness: angular, angular
Shape: bladed, bladed
Percentages: illite = 80, muscovite = 20
Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upward forests from very fine grained to coarse
Name: quartz arenite
Notes: Very silicified. Low porosity. Grains are well rounded.
Hand Sample description:
Fine to medium grained sandstone. Cross bedded with fining upward forests. Pink colour.

Thin section description: MR-35: 48.2_LzL
Percentage:
Clasts = 78
Matrix = 2
Cement = 10
Porosity = 10
Rock fabric: grain supported
Texture:
Grainsize: fine grained (very fine to medium)
Sorting: well sorted
Roundness: subangular to rounded
Shape: equant
Textural maturity: mature
Style of packing: point contacts
Mineral composition:
qtz = 97
feld =
rock frag.= <1
mica = <1
clay = illite = 2
other = hematite = 1, pyroxene <1
Matrix:
Ave. size: silt, fine, very fine, clay
Sorting: poorly
Roundness: subrounded, subrounded, angular, angular
Shape: equant, equant, bladed, bladed
Percentages: hematite = 5, pyroxene = 10, muscovite = 15, illite = 70
Rock fragments: quartzite/polycrystalline quartz
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upward beds from very fine to medium, some coarse grains
Name: quartz arenite
Notes: Higher porosity. Less silicification. More clay. Grains are less rounded. (all compared to shallower T.S.). Not many rock fragments (appear more polycryst.).
Hand Sample description:
Fine grained sandstone. Looks massive, well sorted, possible bedding (hard to tell). Pink colour with red and purple liesegang banding diagonally across the face.

Thin section description: MR-35: 55.2_LzL
Percentage:
Clasts = 79
Matrix = 1

Cement = 15
Porosity = 5
Rock fabric: grain supported
Texture:
Grainsize: medium to fine grained (contains some very fine to coarse)
Sorting: moderate to well sorted
Roundness: subrounded to well rounded
Shape: equant
Textural maturity: super mature
Style of packing: point contact
Mineral composition:
qtz = 98
feld =
rock frag.= 1
mica = <1
clay = calcite = 1, illite <1
other = pyroxene <1
Matrix:
Ave. size: very fine/fine, fine, very fine, clay
Sorting: poorly
Roundness: subrounded, subrounded, angular, angular
Shape: equant, equant, bladed, bladed
Percentages: calcite = 50, pyroxene = 10, mica = 1, illite = 39
Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: coarser/medium beds at base fining upwards into fine grained bed.
Name: quartz arenite
Notes: All grains have significant silica overgrowths. Low illite clay. Higher abundance of carbonate which has a darker brown colour due to hematite staining?.
Hand Sample description:
Medium to fine grained sandstone with some convoluted bedding in coarser beds at base. Cream to light pink colour.

Thin section description: MR-35: 59.3_LzL
Percentage:
Clasts = 89
Matrix = 2
Cement = 6
Porosity = 3
Rock fabric: grain supported
Texture:
Grainsize: medium to coarse grained and fine grained with pebbles
Sorting: moderate to well sorted
Roundness: subrounded
Shape: equant
Textural maturity: mature
Style of packing: point contact, some sutured
Mineral composition:
qtz = 93
feld =
rock frag.= 1
mica = 1
clay = illite =1
other = calcite = 4, pyroxene <1, hematite = 1
Matrix:
Ave. size: very fine, fine, silt, silt, clay
Sorting: poorly
Roundness: subrounded, subrounded, angular, subrounded, angular
Shape: equant, equant, bladed, equant, bladed
Percentages: calcite = 88, pyroxene = 1, muscovite = 3, hematite = 3, illite = 5

Rock fragments: quartzite, igneous with biotite
Orientation of matrix: random
Cement: silica
Sedimentary structures: pebbly sandstone bed overlaying medium grained bed
Name: quartz arenite
Notes: Pebbly sandstone has fine grained sand as matrix. This contains more calcite and has stylotized grains with muscovite between them.
Hand Sample description:
Medium grained, fining upward cross bedded sandstone overlain by pebbly sandstone to conglomerate bed. Cream coloured with faded pink liesegang banding.

Thin section description: MR-35: 65.2_LzL
Percentage:
Clasts = 74
Matrix = 3
Cement = 8
Porosity = 15
Rock fabric: grain supported
Texture:
Grainsize: medium grained (small fine, and more coarse), also bed of granules
Sorting: moderately sorted
Roundness: rounded to well rounded, granules subrounded
Shape: equant
Textural maturity: mature
Style of packing: point contacts
Mineral composition:
qtz = 92 (medium and granule size)
feld =
rock frag.= 3
mica =
clay =
other = calcite = 5, hematite <1
Matrix:
Ave. size: fine, clay
Sorting: poorly
Roundness: subrounded, subrounded
Shape: equant, equant
Percentages: calcite = 90, hematite = 10
Rock fragments: quartzites (almost purely quartz), from medium to granule size
Orientation of matrix: random
Cement: silica
Sedimentary structures: granule bed
Name: quartz arenite
Notes: High percentage of calcite, lacking illite. Hematite is associated with the calcite giving the calcite a darker brown colour. Granules are mainly quartzite and polycrystallized quartz. High porosity.
Hand Sample description:
Medium to coarse grained sandstone with a v.c. to granule size horizon. Fining upwards cross beds. Pink colour with purple liesegang bands cross cutting bedding.

Thin section description: MR-35: 75.2_MF
Percentage:
Clasts = 78
Matrix = 2
Cement = 15
Porosity = 5
Rock fabric: grain supported
Texture:
Grainsize: fine to medium grained (very fine to medium grained)
Sorting: well sorted

Roundness: rounded to well rounded
Shape: equant
Textural maturity: super mature
Style of packing: point contacts
Mineral composition:
- qtz = 96
- feld =
- rock frag.= 2
- mica =
- clay = illilte = 2
- other = pyroxene <1

Matrix:
Ave. size: very fine, clay
Sorting: poorly
Roundness: subrounded, angular
Shape: equant, bladed
Percentages: pyroxene = 2, illite = 96
Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upward beds from medium to very fine grained
Name: quartz arenite
Notes: Grains well rounded. High amount of silica overgrowths. See illite as dominate matrix.
Hand Sample description:
Fine grained sandstone. Cross bedded with fining upward beds from very fine to medium grained. Pink colour.

Thin section description: MR-35: 115.2_MF
Percentage:
- Clasts = 77
- Matrix = 1
- Cement = 2
- Porosity = 20

Rock fabric: grain supported
Texture:
Grainsize: medium grained (fining upwards forests from fine to coarse)
Sorting: well sorted
Roundness: angular to subrounded
Shape: equant
Textural maturity: mature
Style of packing: point and concavo-convex
Mineral composition:
- qtz = 99
- feld =
- rock frag.= <1
- mica = <1
- clay = illite = 1
- other = pyroxene <1

Matrix:
Ave. size: fine, fine, clay
Sorting: poorly
Roundness: subrounded, angular, angular
Shape: equant, bladed, bladed
Percentages: pyroxene = 20, mica = 5, illite = 75
Rock fragments: quartzite, polycrystalline qtz
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upward foresets
Name: quartz arenite
Notes: High porosity. Grains look abraded at edges in places. Minor silica overgrowths. Grain boundaries contact each other, possibly due to compaction or loss of overgrowth marked boundaries? Low amount of illite matrix.

Hand Sample description:
Fine to medium grained sandstone. Ripple cross bedded with fining upward forests from medium to fine grained. Pale pink to cream colour.

Thin section description: MR-35: 135.2_MF
Percentage:
Clasts = 81
Matrix = 2
Cement = 2
Porosity = 15
Rock fabric: grain supported
Texture:
Grainsize: fine to medium grained (in forests)
Sorting: well sorted
Roundness: subrounded to rounded
Shape: equant to prolate
Textural maturity: mature to super mature
Style of packing: concavo-convex, some sutured
Mineral composition:
qtz = 98
feld =
rock frag.= 1
mica = <1
clay = illite = 2
other = pyroxene <1
Matrix:
Ave. size: very fine, very fine, clay
Sorting: poorly
Roundness: subrounded, angular, angular
Shape: equant, bladed, bladed
Percentages: pyroxene = 2, muscovite = 2, illite = 96
Rock fragments: quartzites
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upwards in foresets
Name: quartz arenite
Notes: High porosity. Minor overgrowths, grains sides contacting each other – overgrowths hard to see or getting compacted? See more illite than in above sections.
Hand Sample description:
Medium grained sandstone with cross bedding. Light pink colour with bleached liesegang banding.

Thin section description: MR-35: 165.2_MF
Percentage:
Clasts = 79
Matrix = 3
Cement = 3
Porosity = 15
Rock fabric: grain supported
Texture:
Grainsize: medium and fine grained (split into the two beds, medium bed has up to coarse)
Sorting: moderate to well sorted
Roundness: angular to rounded
Shape: equant
Textural maturity: mature
Style of packing: point contacts
Mineral composition:
qtz = 94
feld =
rock frag.= 1

mica = <1
clay = illite = 5
other =

Matrix:
Ave. size: very fine, clay
Sorting: poorly
Roundness: angular, angular
Shape: bladed, bladed
Percentages: muscovite = 5, illite = 95
Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: fine grain bed at base with medium grained bed cross cutting into it
Name: quartz arenite
Notes: High porosity. Higher clay abundance. Some grains have silica overgrowths. Grains seem abraded at porosity sites. Grains are more angular.
Hand Sample description:
Fine to medium grained sandstone. Fine grained bed overlain by medium grained cross bed. Pink, bleached colour at base with purple colour on top.

Thin section description: MR-35: 175.2_MF
Percentage:
Clasts = 70
Matrix = 3
Cement = 2
Porosity = 25
Rock fabric: grain supported
Texture:
Grainsize: medium (range from fine to coarse, even v.c.)
Sorting: moderately sorted
Roundness: subangular to subrounded
Shape: equant to prolate
Textural maturity: mature
Style of packing: point contacts and concavo-convex
Mineral composition:
qtz = 98
feld =
rock frag.= 1
mica = <1
clay = illite = 3
other = calcite < 1, pyroxene <1
Matrix:
Ave. size: very fine, medium, fine, clay
Sorting: poorly
Roundness: subrounded, subrounded, angular, angular
Shape: equant, equant, bladed, bladed
Percentages: calcite = 5, pyroxene = 2, muscovite = 5, illlite = 88
Rock fragments: quartzites
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: quartz arenite
Notes: High porosity. Many grain boundaries look abraded at porosity sites. High amount of illite in porosity sites. With minor amount of overgrowths and grain edges, possible quartz dissolution?
Hand Sample description:
No hand sample.

Thin section description: MR-35: 187.2_MF
Percentage:

Clasts = 72
Matrix = 1
Cement = 2
Porosity = 25

Rock fabric: grain supported

Texture:

Grainsize: medium grained (fine to coarse grained)
Sorting: moderately sorted
Roundness: subangular to subrounded
Shape: equant to prolate
Textural maturity: mature
Style of packing: point contacts and concave-convex contacts
Mineral composition:

qtz = 98
feld =
rock frag.=
mica =
clay = illite = 2
other = pyroxene <1

Matrix:

Ave. size: very fine, clay
Sorting: poorly
Roundness: subrounded, angular
Shape: equant, bladed
Percentages: pyroxene = 2, illite = 98

Rock fragments: none

Orientation of matrix: random

Cement: silica

Sedimentary structures: slightly fining upwards foresets

Name: quartz arenite

Notes: Some grains look abraded. Less illite and abraded grains than previous slide. Could be dissolution or just less mature.

Hand Sample description:

Medium grained sandstone with ripple cross beds. Pink colour with faded liesegang banding.

Thin section description: MR-35: 193.2_FP

Percentage:

Clasts = 74
Matrix = 20
Cement = 3
Porosity = 3

Rock fabric: grain supported

Texture:

Grainsize: coarse grained (fining upwards from very coarse to medium grained)
Sorting: poorly sorted
Roundness: subangular to subrounded
Shape: equant, some prolate
Textural maturity: immature
Style of packing: point contacts
Mineral composition:

qtz = 68
feld =
rock frag.= 5
mica = 1
clay = illite = 25
other = pyroxene <1, hematite = 1

Matrix:

Ave. size: fine, very fine, fine, clay/silt
Sorting: poorly
Roundness: subrounded, subrounded, angular, angular

Shape: equant, equant, bladed, bladed
Percentages: pyroxene = 1, hematite = 2, muscovite = 2, illite = 95
Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upward beds
Name: sublitharenite
Notes: Illite has a higher interference colour than half of the illite throughout the section. Most grains have some silica overgrowths. Grains are well rounded for FP (because at top?). Hematite collects in the illite.
Hand Sample description:
Coarse grained sandstone with fining upward cross beds from very coarse to fine grained forests. Clay rich. Light pink colour.

Thin section description: MR-35: 201.2_FP
Percentage:
- Clasts = 55
- Matrix = 25
- Cement = 5
- Porosity = 15

Rock fabric: grain supported
Texture:
Grainsize: coarse grained (medium to very coarse)
Sorting: poorly sorted
Roundness: angular to subrounded
Shape: prolate, some equant
Textural maturity: immature
Style of packing: point contact, some sutured
Mineral composition:
- qtz = 55
- feld =
- rock frag.= 10
- mica = 1
- clay = illite = 20, dickite = 12
- other = pyroxene < 1, hematite =2

Matrix:
Ave. size: medium, clay, medium, clay, clay
Sorting: poorly
Roundness: subrounded, subrounded, angular, angular, subrounded
Shape: equant, equant, bladed, bladed, equant
Percentages: pyroxene = 1, hematite = 10, muscovite = 2, illite = 55, dickite = 32
Rock fragments: quartzite, polycrystalline qtz, regolith
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: sublitharenite
Notes: Larger silica overgrowths around most grains. Clay is dominantly illite. Illite has a higher interference colour. Hematite collects in illite, giving it a darker appearance. Dickite looks like kaolinite. Porosity is probably higher and clay content is lower in thin section because it was poorly made.
Hand Sample description:
Coarse grained sandstone. Clay rich. Massive bedding. Light pink-beige coloured.

Thin section description: MR-35: 207.2_FP
Percentage:
- Clasts = 47
- Matrix = 25
- Cement = 3
- Porosity = 25

Rock fabric: grain supported
Texture: Grainsize: coarse grained (fining upward from medium to granules)

Sorting: very poorly sorted
Roundness: angular to subrounded
Shape: equant and prolate
Textural maturity: immature
Style of packing: point contacts
Mineral composition:

qtz = 34
feld =
rock frag.= 25
mica = 1
clay = calcite = 8, illlite = 14, dickite = 10
other = hematite = 2

Matrix:
Ave. size: fine, silt/very fine, medium, clay, clay
Sorting: poorly
Roundness: subrounded, angular, subrounded, subrounded, angular
Shape: equant, bladed, equant, equant, bladed
Percentages: hematite = 5, muscovite = 2, calcite = 20, dickite = 25, illite = 48
Rock fragments: quartzite and igneous with mica
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: litharenite
Notes: Very high porosity, most likely clay content would be higher (poorly made T.S.). Granules are igneous rocks with abundant mica and quartzite. Clay is illite and dickite (looks like kaolinite). Hematite collects in illite, giving it a darker colour. High amount of calcite.
Hand Sample description:
Coarse grained sandstone. Fining upward beds from granules to medium grained. Clay rich. Cream coloured. Green coloured clay in parts.

Thin section description: MR-35: 217.2_FP
Percentage:

Clasts = 72
Matrix = 20
Cement = 3
Porosity = 5

Rock fabric: grain supported
Texture:
Grainsize: coarse grained
Sorting: poorly
Roundness: subangular to subrounded
Shape: equant and prolate
Textural maturity: immature
Style of packing: point contacts
Mineral composition:

qtz = 69
feld =
rock frag.= 5
mica = <1
clay = dickite = 5, illite = 18
other = hematite = 3, pyroxene <1

Matrix:
Ave. size: medium, very fine, clay, clay
Sorting: poorly
Roundness: subrounded, subrounded, subrounded, angular
Shape: equant, equant, equant, bladed
Percentages: pyroxene = 1, hematite = 5, dickite = 19, illite = 75
Rock fragments: quartzite
Orientation of matrix: random
Cement: silica

Sedimentary structures: none
Name: litharentie
Notes: Most grains have some silica cement still on them. The dominant clay is illite, the illite has a high birefringence.
Hand Sample description:
Coarse grained sandstone with some floating granules. Massive bedded. Purple coloured. Clay rich.

Thin section description: MR-35: 219.2_FP
Percentage:
Clasts = 55
Matrix = 20
Cement = 5
Porosity = 20
Rock fabric: grain supported
Texture:
Grainsize: coarse grained (range from medium up to granule)
Sorting: poorly sorted
Roundness: mostly subangular to subrounded, some angular
Shape: equant, some prolate
Textural maturity: immature
Style of packing: point contacts
Mineral composition:
qtz = 48
feld =
rock frag.= 20
mica = <1
clay = illite = 20, dickite = 10
other = pyroxene <1, hematite = 2
Matrix:
Ave. size: fine, fine, clay, clay
Sorting: poorly
Roundness: subrounded, subrounded, angular, angular, subrounded
Shape: equant, equant, bladed, bladed, equant
Percentages: hematite = 5, pyroxene = 1, muscovite = 1, illite = 65, dickite = 28
Rock fragments: quartzite, polycrystalline qtz
Orientation of matrix: random
Cement: silica
Sedimentary structures: bed of granules
Name: litharenite
Notes: High porosity could be due to washing away of clay (as seen as abundant in hand sample), which would bring the clay content up higher. Some grains look abraded (due to high pore space and loss of material?). Most every grain has silica overgrowths. Illite is the dominant clay, and is darker coloured in some places where hematite collects.
Hand Sample description:
Coarse grained sandstone with rows of granules and pebbles at base of beds. Cream coloured, with abundant clay.

Thin section description: MR-35: 229.2_FP
Percentage:
Clasts = 70
Matrix = 15
Cement = 5
Porosity = 10
Rock fabric: grain supported
Texture:
Grainsize: coarse grained, with granules
Sorting: poorly
Roundness: subangular
Shape: equant and prolate
Textural maturity: immature
Style of packing: point contacts

Mineral composition:
qtz = 50
feld =
rock frag.= 30
mica = <1
clay = illite = 9, dickite = 6
other = green min.? = 5

Matrix:
Ave. size: very fine, clay, clay
Sorting: poorly
Roundness: angular, angular, subrounded
Shape: bladed, bladed, equant
Percentages: green min.? = 20, illite = 40, dickite = 30
Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: litharenite
Notes: Most grains have silica overgrowths on them. Green mineral seen in hand sample has a higher birefringence than chlorite, bladed, green in ppl. Have picture of green mineral in 10x. Illite and dickite are close in abundance. Illite has a high birefringence colour.
Hand Sample description:
Coarse grained sandstone with floating very coarse to pebble sized grains. Massive appearance. Cream coloured with a green patch area. Clay rich.

Thin section description: MR-35: 237.2_FP
Percentage:
Clasts = 57
Matrix = 35
Cement = 3
Porosity = 5
Rock fabric: grain supported
Texture:
Grainsize: matrix=coarse (from medium to very coarse), grains=small pebble (from granule to medium pebble)
Sorting: very poorly
Roundness: very angular to subrounded
Shape: equant
Textural maturity: immature
Style of packing: point contacts
Mineral composition:
qtz = 25
feld =
rock frag.= 35
mica = <1
clay = calcite = 2, illite = 20, dickite = 16
other = hematite = 2

Matrix:
Ave. size: silt, fine, fine, clay/fine, clay
Sorting: poorly
Roundness: subrounded, subrounded, angular, angular, subrounded
Shape: equant, equant, bladed, bladed, equant
Percentages: hematite = 10, calcite = 10, muscovite = 5, illite = 40, dickite = 35
Rock fragments: quartzite and polycrystalline quartz, and quartzites with mica
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: litharenite
Notes: The pebbles/granules are mostly quartzites but have some poly qtz grains. These grains are more rounded than the matrix grains (mainly qtz) which are more angular. Some silica overgrowths around grains. Mainly illite and dickite clay. Illite looks darker with hematite collecting in it.

Hand Sample description:
Medium sized pebble conglomerate. Matrix is a coarse to very coarse grained sandstone. Clay rich. Massive appearance. Mottled colour of bleached pink and darker red.

Thin section description: MR-35: 239.1_FP
Percentage:
- Clasts =55
- Matrix = 37
- Cement = 3
- Porosity = 5

Rock fabric: matrix supported
Texture:
Grainsize: coarse and fine grained, with less very coarse to granule size
Sorting: extremely poorly sorted
Roundness: angular to subrounded
Shape: equant and prolate
Textural maturity: immature
Style of packing: point contacts
Mineral composition:
- qtz = 40
- feld =
- rock frag.= 15
- mica = 1
- clay = illite = 20, dickite = 20
- other = pyroxene < 1, hematite = 4

Matrix:
Ave. size: fine, fine, clay/very fine, clay, clay
Sorting: poorly
Roundness: subrounded, angular, subrounded, subrounded, angular
Shape: equant, bladed, equant, equant, bladed
Percentages: pyroxene = 5, muscovite = 2, hematite = 13, dickite = 40, illite = 40
Rock fragments: quartzite, polycrystalline qtz
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: litharenite
Notes: Clay is half illite and half dickite. Illite has high birefringence. Hematite collects in the illite areas, giving it a darker colour. Hematite grains are larger in some areas.
Hand Sample description:
No hand sample.

Thin section description: MR-39: 36.3_LzL
Percentage:
- Clasts = 86
- Matrix = 1
- Cement = 10
- Porosity = 3

Rock fabric: grain supported
Texture:
Grainsize: fine grained (up to med.)
Sorting: moderate to well sorted
Roundness: rounded
Shape: equant
Textural maturity: mature
Style of packing: point contacts
Mineral composition:
- qtz = 98
- feld =
- rock frag.= 1

mica = <1
clay = illite = 1, kaolinite <1
other = pyroxene <1

Matrix:
Ave. size: very fine, medium, clay, clay
Sorting: poorly
Roundness: subrounded, angular, angular, subrounded
Shape: equant, bladed, bladed, equant
Percentages: pyroxene = 20, muscovite = 10, illite = 50, kaolinite = 20
Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upward beds
Name: quartz arenite
Notes: Some illite around grains have a gritty brown look. Grains are well rounded and have high silica overgrowths.
Hand Sample description:
Cream colour with light pink faded liesegang banding. Fine to medium grained sandstone with fining upward beds and convoluted bedding, looks like flame structure of fine sediment into upper coarser bed.

Thin section description: MR-39: 42.6_LzL
Percentage:
Clasts = 80
Matrix = 2
Cement = 8
Porosity = 10
Rock fabric: grain supported
Texture:
Grainsize: medium grained (from fine to coarse with granules)
Sorting: moderate to well sorted
Roundness: subrounded to well rounded
Shape: equant
Textural maturity: mature
Style of packing: point contact
Mineral composition:
qtz = 95
feld =
rock frag.= 1
mica =
clay =
other = calcite = 2, hematite = 1, pyroxene <1

Matrix:
Ave. size: very fine, very fine, very fine
Sorting: poorly
Roundness: subrounded, subrounded, subrounded
Shape: equant, equant, equant
Percentages: hematite = 35, pyroxene = 2, calcite = 63
Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upward beds from coarse to fine, with granule bed at base.
Name: quartz arenite
Notes: Most all grains have silica overgrowths. Most rock fragments are in granules/pebbles. Hematite associated with the calcite (darkens the colour).
Hand Sample description:
Medium grained pebble sandstone. Granule/pebbly sandstone bed at base fining upwards into a medium grained bed, repeating at top with granule bed. Cream colour with purple liesegang banding along bedding.

Thin section description: MR-39: 52.6_LzL
Percentage:

Clasts = 70
Matrix = 22
Cement = 5
Porosity = 3

Rock fabric: grain supported

Texture:

Grain size: silt (v.f. to silt)
Sorting: well sorted
Roundness: subangular to subrounded
Shape: prolate - equant
Textural maturity: mature
Style of packing: point contacts
Mineral composition:

qtz = 75
feld=
rock frag.=
mica= 7
clay= illite = 9
other= hematite = 9

Matrix:

Ave. size: clay, very fine, clay
Sorting: well sorted
Roundness: subrounded, angular, angular
Shape: equant, bladed, bladed
Percentages: hematite = 35, muscovite = 30, illite = 35

Rock fragments: none

Orientation of matrix: muscovite is aligned along horizontal beds.

Cement: silica

Sedimentary structures: horizontally bedded

Name: siltstone

Notes: Muscovite is aligned along horizontal beds. Illite has high birefringence. Hematite is very dominant.

Hand Sample description:

No hand sample recovered. Taken from red silt bed.

Thin section description: MR-39: 53.9_LzL

Percentage:

Clasts = 81
Matrix = 6
Cement = 10
Porosity = 3

Rock fabric: grain supported

Texture:

Grainsize: very fine to fine grained and medium to coarse grained
Sorting: well sorted
Roundness: subrounded to rounded
Shape: equant
Textural maturity: mature
Style of packing: point contacts, sutured in some places (in fine grained bed)
Mineral composition:

qtz = 87
feld =
rock frag.= <1
mica = 2
clay = illite = 1
other = calcite = 8, pyroxene <1, hematite =2

Matrix:

Ave. size: fine, fine, very fine, very fine, clay
Sorting: poorly
Roundness: subrounded, subrounded, subrounded, angular, angular
Shape: equant, equant, equant, bladed, bladed
Percentages: calcite = 71, pyroxene = 1, hematite = 4, muscovite = 4, illite = 20

Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: coarse grained bed overlain fine grained bed.
Name: quartz arenite
Notes: Grains are well rounded, more angular in fine grained bed. Calcite fills in most porosity areas, more abundant in coarse grained bed. Stylotized sections in the fine grained areas.
Hand Sample description:
Fine to very fine grained sandstone bed at base with medium grained sandstone bed with floating coarse to granule sized grains above, with a sharp contact in between. Pink to red coloured with liesegang banding. Fining upward bedding.

Thin section description: MR-39: 62.6_MF
Percentage:
  Clasts = 74
  Matrix = 1
  Cement = 15
  Porosity = 10
Rock fabric: grain supported
Texture:
Grainsize: medium grained
Sorting: well sorted
Roundness: well rounded
Shape: equant
Textural maturity: super mature
Style of packing: point contacts
Mineral composition:
  qtz = 98
  feld =
  rock frag.=
  mica =
  clay = illite = 2
  other =
Matrix:
Ave. size: clay
Sorting: poorly sorted
Roundness: angular
Shape: bladed
Percentages: illite = 100
Rock fragments: none
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upward beds
Name: quartz arenite
Notes: Highly silicified. High porosity for silicification.
Hand Sample description:
Light pink colour. Can see forests of cross beds. Medium to coarse grained ss. Quartz dominated.

Thin section description: MR-39: 82.6_MF
Percentage:
  Clasts = 89
  Matrix = 1
  Cement = 5
  Porosity = 5
Rock fabric: grain supported
Texture:
Grainsize: medium (fine to coarse)
Sorting: well sorted
Roundness: subrounded

Shape: equant
Textural maturity: super mature
Style of packing: concavo-convex
Mineral composition:
  qtz = 98
  feld =
  rock frag.=
  mica =
  clay = illite = 2
  other = calcite (in vein) <1, pyroxene <1

Matrix:
Ave. size: fine, very fine, clay
Sorting: poorly sorted
Roundness: subrounded, subrounded, angular
Shape: equant, equant, bladed
Percentages: pyroxene = 1, calcite = 5, illite = 94
Rock fragments: none
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upward beds
Name: quartz arenite
Notes: Grains are tightly packed, hard to see grain boundaries in silica overgrowths. Possible compaction or just hard to see grain boundaries between the grain and overgrowth. If it is the latter then the cement % is too low. Contains a vein filled with calcite.
Hand Sample description:
Medium to coarse grained ss. Cream coloured. Possible cross beds (can see forests). Brown mineral along fractures. Quartz dominant.

Thin section description: MR-39: 122.6_MF
Percentage:
  Clasts = 85
  Matrix = 2
  Cement = 3
  Porosity = 10
Rock fabric:
Texture:
Grainsize: medium (from fine to coarse)
Sorting: moderate to well sorted
Roundness: subrounded
Shape: equant to prolate
Textural maturity: mature
Style of packing: concavo-convex contacts and point contacts
Mineral composition:
  qtz = 98
  feld =
  rock frag.=
  mica =
  clay = illite = 2
  other =

Matrix:
Ave. size: clay
Sorting: poorly sorted
Roundness: angular
Shape: bladed
Percentages: illite = 100
Rock fragments: none
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upwards beds
Name: quartz arenite

Notes: Not as much silica overgrowths, grains are touching into concavo-convex contacts. Illite concentrates more in the coarse beds. High porosity due to lack of silicification?
Hand Sample description:
Cross bedded with fining upward forests from coarse to fine grained sandstone. Cream coloured.

Thin section description: MR-39: 142.6_MF
Percentage:
- Clasts = 80
- Matrix = 2
- Cement = 3
- Porosity = 15

Rock fabric: grain supported
Texture:
Grainsize: fine grained (range up to medium)
Sorting: very well sorted
Roundness: subrounded (grains with overgrowths look rounded)
Shape: equant
Textural maturity: mature
Style of packing: point contacts and concavo-convex contacts
Mineral composition:
- qtz = 98
- feld =
- rock frag.= <1
- mica =
- clay = illite = 2
- other = pyroxene <1

Matrix:
Ave. size: fine grained, clay
Sorting: poorly sorted
Roundness: subrounded, angular
Shape: equant, bladed
Percentages: pyroxene = 10, illite = 90
Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: quartz arenite
Notes: Grains look abraded. Higher porosity. Low silicification.
Hand Sample description:
Fine grained sandstone. Light pink colour with bleached light pink liesegang banding. Massive appearance.

Thin section description: MR-39: 166.2_MF
Percentage:
- Clasts = 66
- Matrix = 8
- Cement = 1
- Porosity = 25

Rock fabric: grain supported
Texture:
Grainsize: fine to medium with coarse/very coarse grains
Sorting: moderately sorted
Roundness: subangular to subrounded
Shape: equant
Textural maturity: immature-mature
Style of packing: point contacts
Mineral composition:
- qtz = 87
- feld =
- rock frag.= 3

mica = <1
clay = illite = 5
other = calcite = 5, pyroxene <1

Matrix:
Ave. size: fine, very fine, medium, clay
Sorting: poorly
Roundness: subrounded, subrounded, angular, angular
Shape: equant, equant, bladed, bladed
Percentages: calcite = 49, pyroxene = 1, muscovite = 1, illite = 49
Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upward beds.
Name: quartz arenite
Notes: Very little silica cement. Grains are rounded but many are abraded at the edges. High porosity. High amount of calcite. Most coarse/very coarse grains are quartz, some are quartzite.
Hand Sample description:
Medium grained sandstone with coarse to very coarse grains fining upwards. Some floating coarse grains but mainly at the bottom of beds. Cross bedded. Cream coloured with faded pink liesegang banding.

Thin section description: MR-39: 172.6_MF
Percentage:
Clasts = 62
Matrix = 1
Cement = 2
Porosity = 35
Rock fabric: grain supported
Texture:
Grainsize: medium to coarse gr.
Sorting: moderately sorted
Roundness: subrounded
Shape: equant to prolate
Textural maturity: mature
Style of packing: concavo-convex
Mineral composition:
qtz = 99
feld =
rock frag.=
mica =
clay = illite = 1
other =

Matrix:
Ave. size: clay
Sorting: poorly
Roundness: angular
Shape: bladed
Percentages: illite = 100
Rock fragments: none
Orientation of matrix: random
Cement: silica
Sedimentary structures: possible foresets
Name: quartz arenite
Notes: Grains look abraded. Large volume of voids and lack of qtz overgrowths, due to quartz dissolution?
Hand Sample description:
Coarse grained ss. with massive to low? angle bedding. Cream colour. Quartz dominated.

Thin section description: MR-39: 176.6_MF
Percentage:
Clasts = 68

Matrix = 2
Cement = 1
Porosity = 30

Rock fabric: grain-supported

Texture:

Grainsize: medium (range from fine to coarse)
Sorting: moderately to well sorted
Roundness: subangular to subrounded
Shape: equant, some prolate
Textural maturity: mature
Style of packing: concavo-convex, some sutured contacts
Mineral composition:

qtz = 98
feld =
rock frag.=
mica =
clay = illite = 2
other = pyroxene < 1

Matrix:

Ave. size: clay, fine grained
Sorting: poorly
Roundness: angular, subrounded
Shape: bladed, equant
Percentages: illite = 98, pyroxene = 2

Rock fragments: none
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: quartz arentite
Notes: strong lack of silica overgrowths, sutured and concavo-convex contacts, grains seem abraded, abundant porosity, lack of any other minerals, possibly due to quartz dissolution and corroded minerals from acidic fluids. Higher amount of illite from last slide.

Hand Sample description:

Medium grained sandstone with massive bedding. Cream coloured.

Thin section description: MR-39: 178.6_FP

Percentage:

Clasts = 74
Matrix = 20
Cement = 1
Porosity = 5

Rock fabric: grain supported

Texture:

Grainsize: medium to coarse (from fine to very coarse)
Sorting: poorly sorted
Roundness: angular to subrounded
Shape: equant to prolate
Textural maturity: immature
Style of packing: point contacts
Mineral composition:

qtz = 75
feld =
rock frag.=
mica = 3
clay = illite = 20
other = pyroxene < 1, hematite = 2

Matrix:

Ave. size: medium, very fine, silt/granule, clay/medium, clay/medium
Sorting: poorly
Roundness: subrounded, subrounded, angular, angular, angular

Shape: equant, equant, bladed, bladed, bladed
Percentages: pyroxene = 2, hematite = 5, muscovite = 10, illite = 83
Rock fragments: none
Orientation of matrix: random, mica aligned along grain boundaries in stylolites
Cement: silica
Sedimentary structures: none
Name: quartz arenite
Notes: The purple section is where the illite has a higher birefringence than the green section. Most likely purple due to the hematite content. Hematite concentrates in the illite. Stylolites aligned along grain boundaries made up of muscovite.
Hand Sample description:
Medium to coarse grained sandstone. Clay rich. Massive appearance. Green colour in top half and lower half is a purple colour. Possible stylolites or veins running horizontally.

Thin section description: MR-39: 182.6_FP
Percentage:
Clasts = 66
Matrix = 30
Cement = 1
Porosity = 3
Rock fabric: grain supported
Texture:
Grainsize: medium grained (some coarser grains)
Sorting: moderately sorted
Roundness: angular to subrounded
Shape: equant to prolate
Textural maturity: immature to mature
Style of packing: point contacts and concavo-convex contacts
Mineral composition:
qtz = 70
feld =
rock frag.=
mica = 1
clay = illite = 13
other = green mineral? = 15, pyroxene <1, hematite = 1
Matrix:
Ave. size: clay/silt, very fine, medium, very fine, clay
Sorting: poorly
Roundness: angular, angular, subrounded, subrounded, angular
Shape: bladed, bladed, equant, equant, bladed
Percentages: illite = 40, muscovite = 10, pyroxene = 2, hematite = 5, green mineral? = 43
Rock fragments: none
Orientation of matrix: muscovite is aligned along grain boundaries
Cement: silica
Sedimentary structures: none
Name: quartz arenite
Notes: Quartz grains are more angular and broken up, possible corrosion of grains. Mica aligns along seems (stylolites). Illite is larger, in fans. Green mineral has a high birefringence and looks micaceous but very small (clay sized).
Hand Sample description:
Medium grained sandstone. Massive bedding. Clay rich. Dark green/grey colour.

Thin section description: MR-39: 186.6_FP
Percentage:
Clasts = 71
Matrix = 25
Cement = 1
Porosity = 3
Rock fabric: grain supported

Texture:
Grainsize: fine to medium grained with floating coarse to granule sized grains
Sorting: poorly
Roundness: subangular to subrounded
Shape: equant, some prolate
Textural maturity: immature
Style of packing: point contacts, some floating, some sutured
Mineral composition:
qtz = 67
feld =
rock frag.= 5
mica = <1
clay = illite = 25, dickite = 3
other = pyroxene <1, hematite <1
Matrix:
Ave. size: fine, very fine, fine, clay, clay
Sorting: poorly
Roundness: subrounded, subrounded, angular, angular, subrounded
Shape: equant, equant, bladed, bladed, equant
Percentages: pyroxene = 1, hematite = 2, muscovite = 3, illite = 84, dickite = 10
Rock fragments: quartzite, igneous-quartz
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: sublitharenite
Notes: Grains have minor silica overgrowths. Smaller grains are more angular and granules are more rounded, most granules are quartzite. Most clay is illite with higher birefringence.
Hand Sample description:
Granule sandstone with fine to medium grained beds with floating coarse-granules. 2 cm granule sandstone bed in between finer grained beds lacking coarse grains. Cream coloured. Clay rich.

Thin section description: MR-39: 192.6_FP
Percentage:
Clasts = 50
Matrix = 26
Cement = 4
Porosity = 20
Rock fabric: matrix supported
Texture:
Grainsize: coarse grained
Sorting: poorly sorted
Roundness: subangular to subrounded
Shape: equant to prolate
Textural maturity: immature
Style of packing: point contacts and concavo-convex contacts
Mineral composition:
qtz = 60
feld =
rock frag.= 2
mica =
clay = illite = 35, dickite = 2
other = hematite = 1
Matrix:
Ave. size: clay, clay, clay
Sorting: poorly
Roundness: subrounded, angular, subrounded
Shape: equant, bladed, equant
Percentages: hematite = 5, illite = 85, dickite = 10
Rock fragments: quartzite
Orientation of matrix: random

Cement: silica
Sedimentary structures: none
Name: quartz arenite
Notes: High porosity could be due to poorly made slide. Some grains have overgrowths. High amount of poly quartz and rock fragments. Grains are abraded. Over half of the illite has very high interference colours, seems to have a slight green colour, possibly another mineral?
Hand Sample description:
Coarse grained sandstone with some granules. Massive bedding. Clay rich. Beige colour with hint of green.

Thin section description: MR-39: 194.6_FP
Percentage:
Clasts = 53
Matrix = 35
Cement = 2
Porosity = 10
Rock fabric: grain supported
Texture:
Grainsize: medium to coarse grained (from fine to very coarse)
Sorting: poorly
Roundness: angular to subrounded
Shape: equant, some prolate
Textural maturity: immature
Style of packing: point contacts
Mineral composition:
qtz = 43
feld =
rock frag.= 15
mica = 2
clay = illite = 5, green mineral = 30
other = hematite = 1, calcite = 4
Matrix:
Ave. size: silt, medium, fine, clay/very fine, clay
Sorting: poorly
Roundness: subrounded, angular, subrounded, angular, angular
Shape: equant, bladed, equant, bladed, bladed
Percentages: hematite = 2, muscovite = 5, calcite = 15, green mineral = 63, illite = 15
Rock fragments: quartzites, poly qtz
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: sublitharentite
Notes: Most of the clay is the green mineral, with some carbonate and possibly some illite. Green mineral is micaceous, has a slightly higher birefringence than illite, possibly chlorite? Some grains have minor silica overgrowths. Rock frags. are in coarser as well as medium grains.
Hand Sample description:
Coarse grained sandstone. Massive appearance. Poorly sorted. Clay rich. Light green colour.

Thin section description: MR-39: 198.6_FP
Percentage:
Clasts = 50
Matrix = 40
Cement = 2
Porosity = 8
Rock fabric: grain supported
Texture:
Grainsize: coarse (with very coarse up to granule, has small pebble)
Sorting: extremely poorly sorted
Roundness: angular to subrounded
Shape: prolate, some equant

Textural maturity: immature
Style of packing: point contacts and concavo-convex contacts
Mineral composition:

- qtz = 35
- feld =
- rock frag.= 20
- mica = <1
- clay = green/brown mineral = 43
- other = hematite = 2, pyroxene <1

Matrix:
Ave. size: clay, fine, fine, medium
Sorting: poorly
Roundness: angular, subrounded, angular, subrounded
Shape: bladed, equant, bladed, equant
Percentages: green/brown mineral = 83, hematite = 10, muscovite = 5, pyroxene = 2
Rock fragments: quartzites, igneous (mainly quartz, 15% mica), regolith
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: sublitharenite to litharenite
Notes: Abundant rock fragments, mostly metamorphic, with metamorphic textures, some possible igneous? Clay is mainly green/brown mineral, micaceous, has lower birefringence, but colour of green and brown obscures it, mineral most likely related to uraninite. Grains are abraded.
Hand Sample description:
No hand sample.

Thin section description: MR-39: 204.5_FP
Percentage:

- Clasts = 78
- Matrix = 30
- Cement = 1
- Porosity = 1

Rock fabric: grain supported
Texture:
Grainsize: medium to coarse grained, with silt to very fine grained in between
Sorting: moderately sorted
Roundness: angular to subangular
Shape: equant
Textural maturity: immature
Style of packing: point contact, some sutured
Mineral composition:

- qtz = 67
- feld =
- rock frag.= 2
- mica =
- clay = green brown mineral = 30
- other = pyroxene <1, hematite =1

Matrix:
Ave. size: medium, silt, clay
Sorting: poorly
Roundness: subrounded, subrounded, angular
Shape: equant, equant, bladed
Percentages: pyroxene = 1, hematite = 2, green/brown mineral = 97
Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: quartz arentie
Notes: Grains are very angular and abraded. The very fine grained to silt sized quartz could be abraded from the main grains. Clay is overprinted by another mineral, more of a dark green colour, most likely related to uraninite minerals.

Hand Sample description:
Medium to coarse grained sandstone. Grey colour. Clay rich. Massive appearance.

Thin section description: MR-60: 21.6_LzL
Percentage:
Clasts = 81
Matrix = 1
Cement = 15
Porosity = 3
Rock fabric: grain supported
Texture:
Grainsize: medium grained (from fine to coarse grained)
Sorting: moderately sorted
Roundness: subrounded to rounded
Shape: equant
Textural maturity: mature
Style of packing: point contacts
Mineral composition:
qtz = 93
feld =
rock frag.= 3
mica = <1
clay = illite = 1
other = hematite = 1
Matrix:
Ave. size: silt, silt, clay
Sorting: poorly
Roundness: angular, subrounded, angular
Shape: bladed, equant, bladed
Percentages: muscovite = 25, hematite =25, illite = 50
Rock fragments: quarzite
Orientation of matrix: random, mica is aligned along grain boundaries (stylolite)
Cement: silica
Sedimentary structures: possible fining upward beds
Name: quartz arentite
Notes: A Stylolite marked by mica alignments between grains runs through section. Abundant silica overgrowths.
Hand Sample description:
Medium grained sandstone. Pale pink colour. Cross bedded.

Thin section description: MR-60: 23.7_LzL
Percentage:
Clasts = 80
Matrix = 2
Cement = 15
Porosity = 3
Rock fabric: grain supported
Texture:
Grainsize: very fine to medium grained
Sorting: well sorted
Roundness: rounded
Shape: equant
Textural maturity: mature
Style of packing: point contacts
Mineral composition:
qtz = 96
feld =
rock frag.= 1
mica = <1

clay = illite = 1
other = calcite = 2, pyroxene <1

Matrix:
Ave. size: very fine, silt, fine, clay
Sorting: poorly
Roundness: subrounded, angular, subrounded, angular
Shape: equant, bladed, equant, bladed
Percentages: pyroxene = 2, muscovite = 2, calcite = 60, illite = 36
Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upward beds
Name: quartz arenite
Notes: Calcite concentrated in pore spaces more in coarser sections, illite more in finer beds. Abundant silica overgrowths, more in coarser sections, due to higher initially porosity?
Hand Sample description:
Fine to medium grained sandstone with fining upward ripple cross beds. Coarser medium grained beds at top with some floating coarse to very coarse grains. Cream colour.

Thin section description: MR-60: 29.9_LzL
Percentage:
Clasts = 84
Matrix = 1
Cement = 5
Porosity = 10
Rock fabric: grain supported
Texture:
Grainsize: fine to medium grained (from fine to very coarse)
Sorting: moderately to well sorted
Roundness: subrounded
Shape: equant
Textural maturity: mature
Style of packing: point contacts
Mineral composition:
qtz = 97
feld =
rock frag. = 1
mica =
clay = illite = 1
other = calcite = 1

Matrix:
Ave. size: clay, clay
Sorting: poorly
Roundness: subrounded, angular
Shape: equant, bladed
Percentages: calcite = 45, illite = 55
Rock fragments: quartzite, polycrystalline qtz
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upward beds from fine to coarse
Name: quartz arenite
Notes: High porosity. Grains have less silicification. Grains are abraded at some porosity boundaries.
Hand Sample description:
Fine to medium grained sandstone with coarse to very coarse grains on base of bed or floating. Low angled cross bedding with fining upward beds from coarse to fine grained. Light pink colour.

Thin section description: MR-60: 32.3_LzL
Percentage:
Clasts = 85

Matrix = 5
Cement = 5
Porosity = 5
Rock fabric: grain supported
Texture:
Grainsize: very fine grained
Sorting: very well sorted
Roundness: subrounded
Shape: equant and prolate
Textural maturity: mature
Style of packing: point contacts
Mineral composition:
qtz = 94
feld =
rock frag.=
mica = <1
clay = illite = 4
other = hematite = 2, pyroxene <1
Matrix:
Ave. size: clay, very fine, fine, clay
Sorting: poorly
Roundness: subrounded, subrounded, angular, angular
Shape: equant, equant, bladed, bladed
Percentages: hematite = 26, pyroxene = 2, muscovite = 2, illite = 70
Rock fragments: none
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upward bedding
Name: quartz arenite
Notes: All grains have silica overgrowths, grains are subrounded. Abundance of illite in pores. Little porosity.
Hand Sample description:
Very fine grained sandstone. Massive appearance. Purple colour of liesegang banding.

Thin section description: MR-60: 40.5_MF
Percentage:
Clasts = 83
Matrix = 2
Cement = 10
Porosity = 5
Rock fabric: grain supported
Texture:
Grainsize: medium grained (fine grained up to coarse grained)
Sorting: moderate to well sorted
Roundness: rounded to subrounded
Shape: equant
Textural maturity: mature
Style of packing: point contacts, in some places sutured (stylolites)
Mineral composition:
qtz = 96
feld =
rock frag.= 2
mica = 1
clay = illite = 2
other = pyroxene <1
Matrix:
Ave. size: silt, very fine, clay
Sorting: poorly
Roundness: angular, subangular, angular
Shape: bladed, equant, bladed
Percentages: muscovite = 20, pyroxene = 5, illite = 75

Rock fragments: none
Orientation of matrix: random, micas oriented along grain boundaries in stylolites
Cement: silica
Sedimentary structures: fining upward beds from fine grained to med-coarse grained
Name: quartz arentite
Notes: Mica aligned along stylolites.
Hand Sample description:
Medium grained sandstone. Pink colour with light red liesegang banding. Contains cross beds. Contains grain sized intraclasts.

Thin section description: MR-60: 50.5_MF
Percentage:
Clasts = 80
Matrix = 3
Cement = 10
Porosity = 7
Rock fabric: grain supported
Texture:
Grainsize: fine to medium grained (fining upward beds from coarse to very fine)
Sorting: well sorted
Roundness: subrounded to rounded
Shape: equant
Textural maturity: super mature to mature
Style of packing: point contacts, some sutured
Mineral composition:
qtz = 96
feld =
rock frag.=
mica = <1
clay = illite = 3
other = pyroxene 1, hematite <1
Matrix:
Ave. size: fine, very fine, fine, clay
Sorting: poorly
Roundness: subrounded, angular, subrounded, angular
Shape: equant, bladed, equant, bladed
Percentages: pyroxene = 15, muscovite = 5, hematite = 10, illite = 70
Rock fragments: none
Orientation of matrix: random, illite and mica align in stylolites
Cement: silica
Sedimentary structures: fining upward beds from coarse to very fine grained
Name: quartz arentite
Notes: All grains have silica overgrowths. Illite very small, but abundant for MF. Illite and muscovite in places seems aligned, possible clay beds and stylolites.
Hand Sample description:
Fine to medium grained sandstone with cross bedding. Fining upward forests from coarse to fine grained. Cream coloured with some bleached liesgang banding.

Thin section description: MR-60: 70.5_MF
Percentage:
Clasts = 76
Matrix = 1
Cement = 3
Porosity = 20
Rock fabric: grain supported
Texture:
Grainsize: medium grained (contains fine to coarse)
Sorting: well to moderately sorted
Roundness: subrounded to rounded

Shape: equant
Textural maturity: mature
Style of packing: point contacts
Mineral composition:
    qtz = 98
    feld =
    rock frag.= 1
    mica = <1
    clay = illite = 1
    other = pyroxene <1
Matrix:
Ave. size: fine, very fine, clay
Sorting: poorly
Roundness: subrounded, angular, angular
Shape: equant, bladed, bladed
Percentages: pyroxene = 10, muscovite = 10, illite = 80
Rock fragments: polycrystalline qtz
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: quartz arenite
Notes: Little silicification. Some grains are abraded. High porosity. Low clay content.
Hand Sample description:
Medium grained sandstone. Massive appearance. Pink colour with red liesegang banding at base and sparse red reduction spots.

Thin section description: MR-60: 90.5_MF
Percentage:
    Clasts = 86
    Matrix = 2
    Cement = 2
    Porosity = 10
Rock fabric: grain supported
Texture:
Grainsize: medium grained (from fine to coarse grained)
Sorting: moderate to well sorted
Roundness: subangular to subrounded
Shape: equant
Textural maturity: mature
Style of packing: point contacts and concavo-convex
Mineral composition:
    qtz = 97
    feld =
    rock frag.=
    mica =
    clay = illite = 2
    other = hematite = 1
Matrix:
Ave. size: clay, clay
Sorting: poorly
Roundness: subrounded, angular
Shape: equant, bladed
Percentages: hematite = 10, illite = 90
Rock fragments: none
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upwards beds from fine to coarse grains
Name: quartz arenite
Notes: Low silicification. Some grains are abraded. High porosity.
Hand Sample description:

Medium grained sandstone. Light pink colour. Contains cross bedding.

Thin section description: MR-60: 110.5_MF

Percentage:

- Clasts = 82
- Matrix = 1
- Cement = 2
- Porosity = 15

Rock fabric: grain supported

Texture:

Grainsize: medium (from fine to coarse)
Sorting: moderate to well sorted
Roundness: subangular to subrounded
Shape: equant
Textural maturity: mature
Style of packing: point contact, some sutured
Mineral composition:

- qtz = 97
- feld =
- rock frag.=
- mica = <1
- clay = illite = 2
- other = calcite = 1, pyroxene <1

Matrix:

Ave. size: fine, fine, fine, clay
Sorting: poorly
Roundness: angular, subrounded, subrounded, angular
Shape: bladed, equant, equant, bladed
Percentages: muscovite = 2, pyroxene = 2, calcite = 30, illite = 66
Rock fragments: none
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upward beds from fine to coarse
Name: quartz arenite
Notes: High porosity. Low silicification. Some grains are abraded at porosity boundaries.
Hand Sample description:
Medium to fine grained sandstone cross bedded with thin fining upward forests. Cream colour with light red liesegang bands and red reduction spots.

Thin section description: MR-60: 130.5_MF

Percentage:

- Clasts = 90
- Matrix = 3
- Cement = 4
- Porosity = 4

Rock fabric: grain supported

Texture:

Grainsize: medium grained to coarse grained (from fine to very coarse grained)
Sorting: moderately to well sorted
Roundness: subrounded to rounded in grains with visible overgrowths, subangular in other grains
Shape: equant
Textural maturity: mature
Style of packing: point contacts (seen with overgrowth grains), concavo convex with other grains
Mineral composition:

- qtz = 94
- feld =
- rock frag.= 2
- mica =
- clay = illite = 2

other = pyroxene <1, hematite = 2, calcite <1

Matrix:
Ave. size: fine, very fine, clay, clay
Sorting: poorly
Roundness: subrounded, subrounded, subrounded, angular
Shape: equant, equant, equant, bladed
Percentages: pyroxene = 5, calcite = 5, hematite = 45, illite = 45
Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upward beds from fine to very coarse grains
Name: quartz arenite
Notes: Grains seemed more compact. Possible more silica overgrowths but hard to see grain boundaries? Increasing illite content.
Hand Sample description:
Medium to coarse grained sandstone with fining upwards cross beds from very coarse to medium grained beds. Purple colour and pink in bleached areas.

Thin section description: MR-60: 142.5_MF
Percentage:
Clasts = 86
Matrix = 1
Cement = 3
Porosity = 10
Rock fabric: grain supported
Texture:
Grainsize: medium to coarse grained (from fine to very coarse)
Sorting: moderately to well sorted
Roundness: rounded (overgrowth grains), subangular to subrounded (rest of grains)
Shape: equant
Textural maturity: mature
Style of packing: point contacts (overgrowth grains), concavo-convex (rest of grains)
Mineral composition:
qtz = 98
feld =
rock frag.= 1
mica = <1
clay = illite <1
other = calcite = 1, pyroxene <1

Matrix:
Ave. size: fine, silt, very fine, clay
Sorting: poorly
Roundness: subrounded, angular, subrounded, angular
Shape: equant, bladed, equant, bladed
Percentages: pyroxene = 2, muscovite = 2, calcite = 86, illite = 10
Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upwards beds from fine to very coarse
Name: quartz arenite
Notes: Grains seem compacted. Silicified first then compacted and getting grain boundaries growing into each other?
Hand Sample description:
Medium to coarse grained sandstone with fining upwards cross beds from very coarse to fine grained forests. Purple colour with purple liesegang banding cutting across the bedding.

Thin section description: MR-60: 146.5_MF
Percentage:
Clasts = 80
Matrix = 17

Cement = 1
Porosity = 2
Rock fabric: grain supported
Texture:
Grainsize: fine (very fine to medium grained)
Sorting: moderately to poorly
Roundness: subangular to subrounded
Shape: equant and prolate
Textural maturity: immature to mature
Style of packing: point contacts, some sutured (in stylolites)
Mineral composition:
qtz = 80
feld =
rock frag.=
mica = 3
clay = illite = 10
other = hematite = 7, pyroxene <1
Matrix:
Ave. size: very fine, clay, medium, clay
Sorting: poorly
Roundness: subrounded, subrounded, angular, angular
Shape: equant, equant, bladed, bladed
Percentages: pyroxene = 2, hematite = 33, muscovite = 15, illite = 50
Rock fragments: none
Orientation of matrix: horizontal, muscovite aligned in beds and stylolites
Cement: silica
Sedimentary structures: horizontally bedded, fining upwards.
Name: quartz arenite
Notes: Horizontally bedded very fine grained to medium grained sandstone, fining upwards, with clay beds horizontally layered throughout. Muscovite lies horizontally in the clay layers and stylolites. Illite in areas is in book form (plated in a fan shape), shown in picture.
Hand Sample description:
Siltstone to very fine grained sandstone with layers of fine to medium grained sandstone in between. Horizontally bedded. Dark purple colour. Thin clay beds between some layers.

Thin section description: MR-60: 148.5_FP
Percentage:
Clasts = 55
Matrix = 35
Cement = 5
Porosity = 5
Rock fabric: grain supported
Texture:
Grainsize: coarse grained (range from medium to very coarse)
Sorting: poorly sorted
Roundness: subangular to subrounded
Shape: equant, some prolate
Textural maturity: immature
Style of packing: point contacts
Mineral composition:
qtz = 45
feld =
rock frag.= 15
mica = muscovite = 1, chlorite = 1
clay = illite = 6, dickite = 30
other = pyroxene <1, hematite = 2
Matrix:
Ave. size: medium, fine, medium, clay, clay
Sorting: poorly
Roundness: subrounded, angular, angular, subrounded, angular

Shape: equant, bladed, bladed, equant, bladed
Percentages: pyroxene = 3, chlorite = 5, muscovite = 2, dickite = 75, illite = 15
Rock fragments: quartzite, poly qtz
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: sublitharenite
Notes: Most all quartz grains have silica overgrowths. Clay mainly dickite (cherty looking-looks like kaolinite). Illite has high birefringence.
Hand Sample description:
Coarse grained sandstone with a massive appearance with a possible fining upward bedding from very coarse to medium grained bed. Light purple colour with a bleached pink line along a coarser bed. Clay rich.

Thin section description: MR-60: 152.5_FP
Percentage:
Clasts = 56
Matrix = 35
Cement = 5
Porosity = 4
Rock fabric: grain supported
Texture:
Grainsize: coarse to very coarse (from medium to granule)
Sorting: poorly sorted
Roundness: subangular to subrounded
Shape: equant
Textural maturity: immature
Style of packing: point contact
Mineral composition:
qtz = 50
feld =
rock frag.= 10
mica = 1
clay = illite = 8, dickite = 29
other = pyroxene =<1, calcite = 1, hematite = 2
Matrix:
Ave. size: medium, fine, coarse, clay/medium, clay
Sorting: poorly
Roundness: subrounded, subrounded, angular, angular, subrounded
Shape: equant, equant, angular, angular, equant
Percentages: hematite = 10, pyroxene = 1, calcite = 5, muscovite = 4, illite = 15, dickite = 65
Rock fragments: quartzite, igneous (with mica)
Orientation of matrix: random
Cement: silica
Sedimentary structures: possible fine and coarser beds.
Name: sublitharentite
Notes: Most grains have large silica overgrowths. Grains are rounded. Most clay is dickite. Illite mainly clay size (higher biregfringence), but there are areas of medium grained fans of grains (lower birefringence).
Hand Sample description:
Coarse to very coarse grained sandstone. Possible fining upward horizontal beds from very coarse to medium grained. Contains some granules. Abundant clay. Light pink colour.

Thin section description: MR-60: 160.5_FP
Percentage:
Clasts = 55
Matrix = 35
Cement = 7
Porosity = 3
Rock fabric: grain supported
Texture: Grainsize: coarse grained (from fine to very coarse grained)

Sorting: poorly sorted
Roundness: subangular to subrounded (grains underneath silica overgrowths)
Shape: equant, some prolate
Textural maturity: immature
Style of packing: point contacts
Mineral composition:
- qtz = 45
- feld =
- rock frag.= 15
- mica = 1
- clay = illite = 8, dickite = 30
- other = hematite = 1, pyroxene <1, calcite <1

Matrix:
Ave. size: very fine, fine, fine, medium, clay, clay/v. fine
Sorting: poorly
Roundness: subrounded, angular, subrounded, subrounded, subrounded, angular
Shape: equant, bladed, equant, equant, equant, bladed
Percentages: calcite = 1, muscovite = 2, pyroxene = 2, hematite = 5, dickite = 70, illite = 20
Rock fragments: quartzite, poly qtz
Orientation of matrix: random
Cement: silica
Sedimentary structures: possible fining upwards beds from med to v.c.
Name: sublitharenite
Notes: Mostly every grain has abundant silica overgrowths. More rock fragments. Most clay is dickite. Illite mainly clay size (higher biregfringence), but there are areas of medium grained fans of grains (lower birefringence).
Hand Sample description:
Coarse to very coarse grained sandstone. Massive appearing. Clay rich. Purple colour with bleached pink lines along coarser beds.

Thin section description: MR-60: 164.5_FP
Percentage:
- Clasts = 64
- Matrix = 25
- Cement = 8
- Porosity = 3

Rock fabric: grain supported
Texture:
Grainsize: coarse (from medium to very coarse)
Sorting: poorly sorted
Roundness: angular to subrounded
Shape: equant
Textural maturity: immature
Style of packing: point contacts, sutured in stylotized sections
Mineral composition:
- qtz = 55
- feld =
- rock frag.= 15
- mica = 1
- clay = illite = 4, dickite = 20
- other = hematite = 5, pyroxene <1

Matrix:
Ave. size: silt, fine, very fine, very fine, clay/very fine, clay
Sorting: poorly
Roundness: subrounded, subrounded, angular, angular, subrounded
Shape: equant, equant, bladed, bladed, equant
Percentages: hematite = 18, pyroxene = 2, muscovite = 2, illite = 13, dickite = 65
Rock fragments: quartzite, regolith, poly qtz
Orientation of matrix: random, muscovite aligned along grains in stylolites
Cement: silica
Sedimentary structures: none

Name: sublitharenite

Notes: All grains have thick silica overgrowths. In stylolite sections the grains are sutured / mica between the grains / high porosity. Illite has some larger bladed grains (fans), some are a brown colour-due to possible staining from hematite? Hematite is associated with illite. Mainly clay is dickite.

Hand Sample description:

Coarse grained sandstone. Clay rich. Massive appearance. Purple colour with bleached lines at the base of a bed or stylolite?

Thin section description: MR-60: 170.5_FP

Percentage:

- Clasts = 73
- Matrix = 20
- Cement = 2
- Porosity = 5

Rock fabric: grain supported

Texture:

Grainsize: coarse up to very coarse grained (from medium to granule)
Sorting: very poorly sorted
Roundness: angular to subrounded
Shape: equant, some prolate
Textural maturity: immature
Style of packing: point, concavo-convex, some sutured
Mineral composition:

- qtz = 75
- feld =
- rock frag.= 5
- mica = 2
- clay = dickite = 3, illite = 17
- other = hematite = 3, pyroxene <1

Matrix:

Ave. size: medium, fine, medium, clay, clay
Sorting: poorly
Roundness: subrounded, angular, subrounded, angular, subrounded
Shape: equant, bladed, equant, bladed, equant
Percentages: pyroxene = 2, muscovite = 5, hematite = 10, illite = 73, dickite = 10
Rock fragments: quartzite
Orientation of matrix: random and oriented along grain boundaries for mica along stylolites
Cement: silica
Sedimentary structures: none
Name: sublitharenite

Notes: High amount of grains (mainly quartz, minor rock fragments). Grains are compacted. Stylolites and sutured contacts along some grains. Low amount of clay, mainly illite. Not much silica overgrowths.

Hand Sample description:

Coarse to very coarse sandstone. Massive appearance. Clay rich. Purple colour.

Thin section description: MR-60: 174.5_FP

Percentage:

- Clasts = 70
- Matrix = 17
- Cement = 8
- Porosity = 5

Rock fabric: grain supported

Texture:

Grainsize: coarse to very coarse grained (from medium to granules)
Sorting: poorly sorted
Roundness: angular to subrounded
Shape: equant and prolate
Textural maturity: immature
Style of packing: point contacts, some concavo-convex

Mineral composition:

qtz = 55
feld =
rock frag. = 20
mica = <1
clay = dickite = 11, illite= 13
other = pyroxene <1, hematite = 1

Matrix:
Ave. size: fine, fine, fine, clay, clay, clay/very fine
Sorting: poorly
Roundness: angular, subrounded, subrounded, subrounded, angular
Shape: bladed, equant, equant, equant, bladed
Percentages: muscovite = 1, pyroxene = 1, hematite = 5, dickite = 43, illite = 50
Rock fragments: quartzite, regolith, poly qtz
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: litharenite
Notes: Grains are getting more angular. Most grains have silica overgrowths. Illite occurs as clay sized / micaceous / low birefringence and as fans / very fine grained / brown colouring.
Hand Sample description:
Coarse grained sandstone with floating granules. Massive appearance. Abundant clay. Reddish colour.

Thin section description: MR-60: 178.5_FP
Percentage:

Clasts = 67
Matrix = 25
Cement = 5
Porosity = 3

Rock fabric: grain supported
Texture:
Grainsize: coarse (with medium to very coarse, see some granules up to pebbles)
Sorting: very poorly sorted
Roundness: angular to subrounded
Shape: equant, some prolate
Textural maturity: immature
Style of packing: point contacts, some concavo-convex
Mineral composition:

qtz = 55
feld =
rock frag. = 20
mica = < 1
clay = illite = 17, dickite = 5
other = pyroxene <1, hematite = 3

Matrix:
Ave. size: fine, fine, medium, clay/v. fine, clay
Sorting: poorly
Roundness: subrounded, angular, subrounded, angular, subrounded
Shape: equant, bladed, equant, bladed, equant
Percentages: hematite = 10, muscovite = 2, pyroxene = 1, illite = 72, dickite = 15
Rock fragments: quartzite, poly qtz
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: sublitharenite
Notes: Most grains have silica overgrowths. Dominant clay is illite, some illite is in fans and is a brown colour. Large pebble is quartzite.
Hand Sample description:
Coarse to very coarse grained sandstone with floating large pebbles. Massive appearance. Clay rich. Purple colour.

Thin section description: MR-60: 184.5_FP
Percentage:
Clasts = 76
Matrix = 20
Cement = 1
Porosity = 3
Rock fabric: grain supported
Texture:
Grainsize: medium (from fine to coarse)
Sorting: poorly sorted
Roundness: angular to subrounded
Shape: equant and prolate
Textural maturity: immature
Style of packing: point contacts
Mineral composition:
qtz = 65
feld =
rock frag.= 15
mica =
clay = illite = 9, dickite = 9
other = hematite = 2, pyroxene <1, calcite <1
Matrix:
Ave. size: very fine, fine, fine, clay/silt, clay
Sorting: poorly
Roundness: subrounded, subrounded, subrounded, angular, subrounded
Shape: equant, equant, equant, bladed, equant
Percentages: calcite = 5, hematite = 10, pyroxene = 3, illite = 41, dickite = 41
Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: litharenite
Notes: Angular grains. High amount of grains, low clay. Coarse grained bed at base. Illite is mainly clay sized with high birefringence but have some fans of silt-v.f. grained with low birefringence. Hematite is associated with calcite.
Hand Sample description:
Medium grained sandstone with a coarse grained bed at base. Medium grained sandstone seems massive – possible horizontal bedding. Clay rich. Pink-orange colour.

Thin section description: MR-60: 188.7_FP
Percentage:
Clasts = 68
Matrix = 20
Cement = 2
Porosity = 10
Rock fabric: grain supported
Texture:
Grainsize: coarse grained (with pebbles)
Sorting: poorly
Roundness: subangular
Shape: equant
Textural maturity: immature
Style of packing: point contacts
Mineral composition:
qtz = 50
feld =
rock frag.= 20
mica = <1
clay = illite = 26
other = hematite = 2, calcite = 2, pyroxene <1

Matrix:
Ave. size: very fine, medium, very fine, clay
Sorting: poorly
Roundness: subrounded, subrounded, subrounded, angular
Shape: equant, equant, equant, bladed
Percentages: hematite = 10, pyroxene = 2, calcite = 10, illite = 78
Rock fragments: quartzite, poly qtz
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: litharenite
Notes: Clay is all illite, is bladed, in fans some times – silt sized, has higher birefringence some times. Calcite is concentrated in the pebbly sandstone.
Hand Sample description:
Pebbly sandstone with coarse grains as matrix. Pebbly sandstone at base with a coarse grained sandstone above with floating pebbles in it. Pink colour. Clay rich. Pebbly sandstone has a massive appearance overlain by coarse sandstone with massive appearance. Pebbles all appear to be quartz.

Thin section description: MR-60: 190.5_FP
Percentage:
Clasts = 68
Matrix = 25
Cement = 2
Porosity = 5
Rock fabric: grain supported
Texture:
Grainsize: medium grained (from fine to coarse)
Sorting: moderately to poorly sorted
Roundness: angular, with some up to subrounded
Shape: equant and prolate
Textural maturity: immature to mature
Style of packing: point contacts
Mineral composition:
qtz = 60
feld =
rock frag.= 10
mica = < 1
clay = illite = 15, dickite = 14
other = calcite < 1, pyroxene < 1, hematite = 1
Matrix:
Ave. size: medium, silt, fine, clay/ very fine, clay
Sorting: poorly
Roundness: angular, subrounded, subrounded, angular, subrounded
Shape: bladed, equant, equant, bladed, equant
Percentages: muscovite = 2, hematite = 3, pyroxene = 2, illite = 70, dickite = 23
Rock fragments: quartzite, poly qtz
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upwards beds from fine to coarse grains
Name: sublitharenite
Notes: Grains are smaller and very angular compared to shallower holes (possibly due to small grains as opposed to depth). Not much silica overgrowths. Illite is in clay and silt/very fine grained size (fans). Less rock fragments.
Hand Sample description:
Medium grained sandstone with fining upward cross beds from coarse to fine grained. Clay rich. Pink colour.

Thin section description: MR-60: 196.5_FP
Percentage:
Clasts = 64
Matrix = 28

Cement = 3
Porosity = 5
Rock fabric: grain supported
Texture:
Grainsize: coarse grained (medium to very coarse)
Sorting: poorly sorted
Roundness: angular to subrounded
Shape: equant to prolate
Textural maturity: immature
Style of packing: point contacts
Mineral composition:
qtz = 58
feld =
rock frag.= 10
mica = < 1
clay = illite = 20, dickite = 10
other = pyroxene < 1, hematite = 2, calcite <1
Matrix:
Ave. size: fine, medium, coarse, fine, clay/very fine, clay
Sorting: poorly
Roundness: subrounded, subrounded, subrounded, angular, angular, subrounded
Shape: equant, equant, equant, bladed, bladed, equant
Percentages: calcite = 1, pyroxene = 5, hematite = 10, mica = 5, illite = 55, dickite = 24
Rock fragments: quartzite, poly qtz
Orientation of matrix: random, muscovite aligned along grains
Cement: silica
Sedimentary structures: none
Name: sublitharenite
Notes: Some grains still have silica overgrowths. Illite is dominant clay, illite in clay (higher birefringence) and very fine grained size (fans).
Hand Sample description:
Coarse grained sandstone. Massive appearance. Clay rich. Purple with pink bleaching.

Thin section description: MR-60: 202.5_FP
Percentage:
Clasts = 60
Matrix = 27
Cement = 3
Porosity = 10
Rock fabric: grain supported
Texture:
Grainsize: coarse (mainly medium to coarse grained fining upward beds, from fine to very coarse)
Sorting: poorly sorted
Roundness: angular (very angular to subrounded)
Shape: equant, some prolate
Textural maturity: immature
Style of packing: point contacts
Mineral composition:
qtz = 55
feld =
rock frag.= 10
mica = <1
clay = illite = 25, dickite = 6
other = pyroxene < 1, hematite = 4
Matrix:
Ave. size: fine, very fine/medium, medium, clay, clay/fine
Sorting: poorly
Roundness: subrounded, subrounded, bladed, bladed, subrounded
Shape: equant, equant, bladed, bladed, equant
Percentages: pyroxene = 2, hematite = 15, muscovite = 2, dickite = 20, illite = 61

Rock fragments: quartzite, poly qtz
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upward beds from medium to very coarse
Name: litharentite
Notes: Some grains have silica overgrowths. Grains are more angular. Large amount of clay, dominated by illite up to fine grained (fans). Hematite concentrates in the illite.
Hand Sample description:
Medium grained sandstone with coarse to very coarse grained base of beds. Fining upwards beds from very coarse to medium grained. Clay rich. Orange-pink colour with red liesegang banding closely parallel to beds.

Thin section description: MR-60: 206.4_FP
Percentage:
Clasts = 52
Matrix = 35
Cement = 5
Porosity = 8
Rock fabric: grain supported
Texture:
Grainsize: coarse grained (from medium to granule)
Sorting: poorly sorted
Roundness: mainly subangular to subrounded, some angular
Shape: equant, some prolate
Textural maturity: immature
Style of packing: point contacts
Mineral composition:
qtz = 35
feld =
rock frag. = 20
mica = <1
clay = illite = 25, dickite = 10
other = hematite = 10, pyroxene < 1, calcite < 1
Matrix:
Ave. size: fine, fine, fine, medium, clay-medium, clay
Sorting: poorly
Roundness: subrounded, angular, subrounded, subrounded, angular, subrounded
Shape: equant, bladed, equant, equant, bladed, equant
Percentages: calcite = 2, muscovite = 2, hematite = 18, pyroxene = 2, illite = 60, dickite = 16
Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: contains a granule bed
Name: litharenite
Notes: Most granules are rock fragments. Most grains have silica overgrowths. Illite is most abundant clay (not much kaolinite). Dominant clay is illite, clay (high birefringence) to medium (low birefringence and fan from). Higher porosity. Large amount of hematite. Calcite dominant in coarser bed.
Hand Sample description:
Coarse to very coarse grained sandstone with floating granules. A fining upward package from a granule bed into the coarse ss back into the next granule bed. Clay rich. Purple colour.

Thin section description: MR-80: 31.4_LzL
Percentage:
Clasts = 78
Matrix = 2
Cement = 15
Porosity = 5
Rock fabric: grain supported
Texture:
Grainsize: fine to medium grained

Sorting: well sorted
Roundness: subrounded to well rounded
Shape: equant
Textural maturity: mature to super mature
Style of packing: point contacts
Mineral composition:
qtz = 97
feld =
rock frag.= 1
mica = <1
clay =
other = calcite = 2, pyroxene <1, hematite <1

Matrix:
Ave. size: silt, fine, fine, fine
Sorting: poorly
Roundness: subrounded, subrounded, angular, subrounded
Shape: equant, equant, bladed, equant
Percentages: hematite = 2, pyroxene = 1, muscovite = 1, calcite = 96

Rock fragments: quartzite and poly. qtz
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upward foresets
Name: quartz arenite
Notes: Abundant silica overgrowth on all grains. All grains well rounded. Calcite is dominant cement.
Hand Sample description:
Fine to medium grained sandstone in fining upward forests 2cm thick with granules at the base of beds as well as floating in forests. Light pink colour. Bleached out liesegang banding which run closely along bedding.

Thin section description: MR-80: 33.9_LzL
Percentage:
Clasts = 87
Matrix = 10
Cement = 3
Porosity = 2
Rock fabric: grain supported

Texture:
Grainsize: silt to very fine grained (some floating medium grains)
Sorting: well sorted
Roundness: subrounded
Shape: equant
Textural maturity: mature
Style of packing: point contacts
Mineral composition:
qtz = 90
feld =
rock frag.=
mica = <1
clay = illite = 7
other = pyroxene <1 , hematite = 3

Matrix:
Ave. size: very fine, clay, fine, clay
Sorting: poorly
Roundness: subrounded, subrounded, angular, angular
Shape: equant, equant, bladed, bladed
Percentages: pyroxene = 2, hematite = 25, muscovite = 2, illite = 71

Rock fragments: none
Orientation of matrix: random
Cement: silica
Sedimentary structures: massive appearance
Name: quartz arenite

Notes: Grains have silica overgrowths. Illite and hematite infill pores. Medium grains are weakly aligned along horizontal beds?

Hand Sample description:

Very fine grained sandstone. Horizontally bedded. Red-purple colour with thin cream lines going horizontally (probably bleached along bedding planes).

Thin section description: MR-80: 38.5_LzL

Percentage:

Clasts = 82
Matrix = 5
Cement = 6
Porosity = 7

Rock fabric: grain supported

Texture:

Grainsize: medium grained (from fine to coarse)
Sorting: moderately sorted
Roundness: subrounded to well rounded
Shape: equant
Textural maturity: mature
Style of packing: point contacts
Mineral composition:

qtz = 93
feld =
rock frag.=
mica =
clay =
other = calcite = 4, hematite = 3, pyroxene <1

Matrix:

Ave. size: very fine, clay, fine
Sorting: poorly
Roundness: subrounded, subrounded, subrounded
Shape: equant, equant, equant
Percentages: calcite = 58, hematite = 40, pyroxene = 2

Rock fragments: none
Orientation of matrix: random
Cement: silica
Sedimentary structures: appears massive
Name: quartz arenite
Notes: A massive appearing sandstone with mainly medium grains but contains fine to coarse grains. All grains have silica overgrowths. No clay just calcite and hematite infilling pore spaces.

Hand Sample description:

Medium grained sandstone with some floating granules. Convoluted bedding. Pink to red colour.

Thin section description: MR-80: 41.4_LzL

Percentage:

Clasts = 65
Matrix = 2
Cement = 3
Porosity = 30

Rock fabric: grain supported

Texture:

Grainsize: coarse grained (from fine to very coarse)
Sorting: moderately sorted
Roundness: subrounded to well rounded
Shape: equant
Textural maturity: mature
Style of packing: point contacts
Mineral composition:

qtz = 91

feld =
rock frag.= 5
mica =
clay = illite <1
other = calcite = 3, hematite = 1

Matrix:
Ave. size: clay, fine, clay
Sorting: poorly
Roundness: subrounded, subrounded, angular
Shape: equant, anhedral, bladed
Percentages: hematite = 38, calcite = 60, illite = 2
Rock fragments: quartzite and polycrystalline quartz
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: quartz arenite
Notes: All grains have minor silica overgrowths. High porosity. High rock frags. Grains are abraded near porosity sites. Hematite is associated with the calcite.
Hand Sample description:
Coarse grain sandstone. From fine to very coarse grained. Massive appearance. Pink colour.

Thin section description: MR-80: 42.2_LzL
Percentage:
Clasts = 82
Matrix = 2
Cement = 8
Porosity = 8

Rock fabric: grain supported
Texture:
Grainsize: fine to medium grained
Sorting: well sorted
Roundness: rounded to subrounded
Shape: equant
Textural maturity: mature
Style of packing: point contacts
Mineral composition:
qtz = 98
feld =
rock frag.= <1
mica =
clay = kaolinite <1
other = calcite = 2, hematite <1 , pyroxene <1

Matrix:
Ave. size: clay, very fine, very fine, clay
Sorting: poorly
Roundness: subrounded, subrounded, subrounded, subrounded
Shape: equant, equant, equant, equant
Percentages: hematite = 2, pyroxene = 2, calcite = 86, kaolinite = 10
Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: quartz arenite
Notes: Most grains have thin silica overgrowths which capture their rounded grain boundaries. Have dominantly calcite cement.
Hand Sample description:
Fine to medium grained sandstone. Possible thin cross beds, hard to see with liesegang banding parallel with bedding. Pink colour with light red liesegang banding.

Thin section description: MR-80: 45.8_LzL
Percentage:
Clasts = 80
Matrix = 5
Cement = 7
Porosity = 8
Rock fabric: grain supported
Texture:
Grainsize: medium to coarse (up to very coarse)
Sorting: moderately sorted
Roundness: rounded
Shape: equant and prolate
Textural maturity: mature
Style of packing: point contacts
Mineral composition:
qtz = 91
feld =
rock frag.= 2
mica =
clay = illite <1
other = calcite = 4, hematite = 3
Matrix:
Ave. size: fine, fine, clay
Sorting: poorly
Roundness: subrounded, subrounded, angular
Shape: equant, equant, bladed
Percentages: calcite = 55, hematite = 44, illite = 1
Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: quartz arenite
Notes: Grains have slight fining upward appearance, mainly random. All grains have silica overgrowths. Many calcite and hematite infilling pore spaces, hematite associated with the calcite.
Hand Sample description:
Medium up to very coarse grained sandstone with fining upward bedding, very coarse grains at base of beds. Beds 1 cm thick. Pink to red colour.

Thin section description: MR-80: 46.0_MF
Percentage:
Clasts = 87
Matrix = 1
Cement = 10
Porosity = 2
Rock fabric: grain supported
Texture:
Grainsize: fine to medium grained
Sorting: well sorted
Roundness: well rounded
Shape: equant
Textural maturity: mature
Style of packing: point contacts
Mineral composition:
qtz = 98
feld =
rock frag.= 1
mica =
clay = illite = 1
other = pyroxene <1

Matrix:
Ave. size: very fine, clay
Sorting: poorly
Roundness: subrounded, angular
Shape: equant, bladed
Percentages: pyroxene = 5, illite = 95
Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: quartz arenite
Notes: All grains have silica overgrowths. Appears well sorted. Contains some rock fragments.
Hand Sample description:
Fine to medium grained sandstone with ripple cross bedding. Light pink colour.

Thin section description: MR-80: 55.3_MF
Percentage:
- Clasts = 82
- Matrix = 1
- Cement = 12
- Porosity = 5

Rock fabric: grain supported
Texture:
Grainsize: fine to medium grained
Sorting: well to extremely well sorted
Roundness: well rounded to subrounded
Shape: equant
Textural maturity: mature to super mature
Style of packing: point contacts
Mineral composition:
- qtz = 97
- feld =
- rock frag.= 1
- mica =
- clay = illite = 1
- other = calcite = 1, hematite <1

Matrix:
Ave. size: clay, very fine, clay
Sorting: poorly
Roundness: subrounded, subrounded, angular
Shape: equant, anhedral, bladed
Percentages: hematite = 2, calcite = 38, illite = 60
Rock fragments: polycrystalline quartz
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upward beds from medium to fine grained
Name: quartz arenite
Notes: All grains have silica overgrowths and are well rounded. Clay matrix is illite and calcite.
Hand Sample description:
Fine to medium grained sandstone with thin cross beds. Light pink colour with light purple liesegang banding across bedding.

Thin section description: MR-80: 70.7_MF
Percentage:
- Clasts = 78
- Matrix = 2
- Cement = 5
- Porosity = 15

Rock fabric: grain supported

Texture:

Grainsize: fine grained (from very fine to medium)
Sorting: well sorted
Roundness: subrounded to well rounded
Shape: equant
Textural maturity: mature
Style of packing: point contacts
Mineral composition:

qtz = 98
feld =
rock frag.= <1
mica = <1
clay = illite = 2
other = pyroxene <1, calcite <1

Matrix:

Ave. size: very fine, fine, fine, clay
Sorting: poorly
Roundness: subrounded, angular, subrounded, angular
Shape: equant, bladed, equant, bladed
Percentages: pyroxene = 1, muscovite = 1, calcite = 15, illite = 83

Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: quartz arenite
Notes: High amount of porosity and low silicification (thin amount on grains). Some grain boundaries seem abraded.
Hand Sample description:
Fine grained sandstone. Cross bedded with thin forests, hard to see because lack of large grain variation. Well sorted. Light pink to cream colour.

Thin section description: MR-80: 99.9_MF

Percentage:

Clasts = 82
Matrix = 1
Cement = 2
Porosity = 15

Rock fabric: grain supported

Texture:

Grainsize: fine grained, up to medium grained (with some floating very/coarse grains)
Sorting: well to moderately sorted
Roundness: subangular to subrounded
Shape: equant
Textural maturity: mature
Style of packing: point contacts, some concavo-convex
Mineral composition:

qtz = 99
feld =
rock frag.= <1
mica =
clay = illite = 1
other = pyroxene <1

Matrix:

Ave. size: fine, clay
Sorting: poorly
Roundness: subrounded, angular
Shape: equant, bladed
Percentages: pyroxene = 30, illite = 70

Rock fragments: quartzite
Orientation of matrix: random

Cement: silica
Sedimentary structures: fining upward bed from medium to fine grained
Name: quartz arenite
Notes: Little silica overgrowths. Little matrix. Mainly fine grained with floating coarse grains. Grains are compacted and some are abraded.
Hand Sample description:
Fine to medium grained sandstone with thin fining upward beds from medium to fine grained, looks cross bedded. Cream coloured.

Thin section description: MR-80: 110.2_MF
Percentage:
    Clasts = 82
    Matrix = 1
    Cement = 2
    Porosity = 15
Rock fabric: grain supported
Texture:
Grainsize: fine to medium grained
Sorting: well sorted
Roundness: subrounded
Shape: equant
Textural maturity: mature
Style of packing: point contacts, some concavo-convex
Mineral composition:
    qtz = 99
    feld =
    rock frag = <1
    mica =
    clay = illite = 1
    other = pyroxene <1
Matrix:
Ave. size: fine, clay
Sorting: poorly
Roundness: subrounded, angular
Shape: equant, bladed
Percentages: pyroxene = 2, illite = 98
Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: quartz arenite
Notes: Low silicification. Grains edges abraded at porosity sites.
Hand Sample description:
Fine to medium grained sandstone. Massive appearing. Light pink colour with minor light purple liesegang banding.

Thin section description: MR-80: 127.5_MF
Percentage:
    Clasts = 84
    Matrix = 1
    Cement = 5
    Porosity = 10
Rock fabric: grain supported
Texture:
Grainsize: fine to medium grained
Sorting: well sorted
Roundness: subangular to rounded
Shape: equant and prolate
Textural maturity: mature
Style of packing: point contacts and concavo-convex

Mineral composition:
- qtz = 99
- feld =
- rock frag.= <1
- mica =
- clay = illite = 1
- other = pyroxene <1

Matrix:
Ave. size: very fine, clay
Sorting: poorly
Roundness: subrounded, angular
Shape: equant, bladed
Percentages: pyroxene = 2, illite = 98
Rock fragments: polycrystalline quartz
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upward beds of medium to fine grained
Name: quartz arenite
Notes: Grains don't appear to have much silica overgrowth. Grain edges contacting each other, appearing as concavo-convex contacts (due to burial or can we not see overgrowth edges?).
Hand Sample description:
Fine to medium grained sandstone with fining upward foresets of 1 cm thickness. Beds at 45 degrees to the core axis. Light pink colour with light red liesegang squiggly banding and red reduction spots.

Thin section description: MR-80: 136.1_MF
Percentage:
- Clasts = 80
- Matrix = 1
- Cement = 2
- Porosity = 17

Rock fabric: grain supported
Texture:
Grainsize: medium to coarse (from fine to very coarse)
Sorting: moderately sorted
Roundness: angular to subrounded
Shape: equant
Textural maturity: mature
Style of packing: point contacts and some concavo-convex contacts
Mineral composition:
- qtz = 98
- feld =
- rock frag.= 1
- mica =
- clay = illite = 1
- other = pyroxene <1

Matrix:
Ave. size: fine, clay
Sorting: poorly
Roundness: subrounded, angular
Shape: equant, bladed
Percentages: pyroxene = 2, illlite = 98
Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upward foresets
Name: quartz arenite
Notes: Grain edges seem abraded at porosity areas. Silica overgrowths on some grains. High porosity. Grain edges seem to be concavo-convex but could be overgrowths growing into each other but hard to see grain boundaries.
Hand Sample description:

Cross bedded medium grained sandstone with coarse to granule sized grains at base of beds. Thin forests which are fining upwards. Light pink colour.

Thin section description: MR-80: 146.1_MF
Percentage:
Clasts = 57
Matrix = 40
Cement = 1
Porosity = 2
Rock fabric: grain supported
Texture:
Grainsize: very fine grained
Sorting: moderately sorted
Roundness: angular to rounded
Shape: prolate, some equant
Textural maturity: mature
Style of packing: point contacts
Mineral composition:
qtz = 60
feld =
rock frag.=
mica = 15
clay = kaolinite = 25
other = pyroxene < 1, hematite = 2
Matrix:
Ave. size: silt/medium, silt, clay, clay
Sorting: poorly
Roundness: angular, subrounded, subrounded, subrounded
Shape: bladed, equant, equant, equant
Percentages: muscovite = 33, pyroxene = 2, hematite = 5, kaolinite = 60
Rock fragments: none
Orientation of matrix: horizontal
Cement: silica
Sedimentary structures: horizontal beds of quartz grains alternating with clay beds.
Name: quartz arenite
Notes: Clay beds are mainly kaolinite. Muscovite is aligned horizontally along bedding. Dominantly quartz beds at base with dominantly clay beds at top, with these you see a change in percentages of minerals (in qtz beds = more qtz).
Hand Sample description:
Very fine grained sandstone with thin horizontally interbedded clay drapes. Beige coloured.

Thin section description: MR-80: 150.7_MF
Percentage:
Clasts = 70
Matrix = 8
Cement = 2
Porosity = 20
Rock fabric: grain supported
Texture:
Grainsize: medium grained (from fine to very coarse)
Sorting: moderately sorted
Roundness: subangular to subrounded
Shape: equant, some prolate
Textural maturity: mature
Style of packing: point contacts
Mineral composition:
qtz = 78
feld =
rock frag.= 2
mica =

clay = illite = 17
other = pyroxene <1, hematite = 3

Matrix:
Ave. size: clay, very fine, clay
Sorting: poorly
Roundness: subrounded, subrounded, angular
Shape: equant, equant, bladed
Percentages: hematite = 10, pyroxene = 2, illite = 88
Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upward beds from fine to coarse grained
Name: quartz arenite
Notes: Not silicified. Grains are more abraded and angular. Not much rock frags. Abundant clay. Illite looks dark and grungy (due to hematite). Fairly high porosity.
Hand Sample description:
Medium grained sandstone with fining upward beds from very coarse to fine grained. Some floating very coarse grained grains and intraclasts along base of beds. Light pink colour.

Thin section description: MR-80: 154.8_MF
Percentage:
Clasts = 78
Matrix = 4
Cement = 8
Porosity = 10
Rock fabric: grain supported
Texture:
Grainsize: medium (fining upwards from fine to very coarse)
Sorting: moderately sorted
Roundness: subrounded to rounded
Shape: equant
Textural maturity: mature
Style of packing: point contacts
Mineral composition:
qtz = 88
feld =
rock frag.= 2
mica = <1
clay = illite =10
other = pyroxene <1, hematite <1
Matrix:
Ave. size: very fine, very fine, silt, clay
Sorting: poorly
Roundness: subrounded, angular, subrounded, angular
Shape: equant, bladed, equant, bladed
Percentages: pyroxene = 1, muscovite = 1, hematite = 5, illite = 93
Rock fragments: quartzite and polycrystalline qtz
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upward foresets from fine to coarse/very coarse grains
Name: quartz arenite
Notes: Most all grains have silica rimmed overgrowths. The larger grains are more silicified. Grains are rounded. Higher amount of clay, all illite. Hematite concentrates in illite, giving it a darker, grungy colour. See more rock frags.
Hand Sample description:
Medium grained sandstone with coarse to very coarse grains at base of forests. Beds are at a 45 degree angle to core axis. Light pink colour with purple liesegang banding near parallel to bedding.

Thin section description: MR-80: 155.8_MF
Percentage:

Clasts = 79
Matrix = 4
Cement = 2
Porosity = 15

Rock fabric: grain supported

Texture:

Grainsize: fine to medium grained (from very fine to medium)
Sorting: moderate to well sorted
Roundness: subangular to subrounded
Shape: equant
Textural maturity: mature
Style of packing: point contacts
Mineral composition:

qtz = 90
feld =
rock frag.= <1
mica = <1
clay = illite = 8
other = pyroxene < 1, hematite = 2

Matrix:

Ave. size: clay, very fine, fine, clay
Sorting: poorly
Roundness: subrounded, subrounded, angular, angular
Shape: equant, equant, bladed, bladed
Percentages: hematite = 10, pyroxene = 2, muscovite = 1, illite = 87

Rock fragments: poly qtz
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upward beds from very fine to medium grained
Name: quartz arentie
Notes: Not highly silicified, possibly due to smaller grain size, making it less porous. Higher porosity and clay content compared to shallower depths. Grains are more angular.
Hand Sample description:

Fine to medium grained sandstone. Possible cross bedding, hard to tell with little variation in grain size. Beige colour with minor light purple liesegang banding.

Thin section description: MR-80: 156.7_MF

Percentage:

Clasts = 80
Matrix = 4
Cement = 1
Porosity = 15

Rock fabric: grain supported

Texture:

Grainsize: medium grained (from fine to granule)
Sorting: moderately to poorly sorted
Roundness: subangular to subrounded
Shape: equant
Textural maturity: mature
Style of packing: concavo-convex/sutured and point contacts
Mineral composition:

qtz = 82
feld =
rock frag.= 8
mica = <1
clay = illite = 8
other = pyroxene <1, hematite = 3

Matrix:

Ave. size: clay, very fine, very fine, clay
Sorting: poorly

Roundness: subrounded, subrounded, angular, angular
Shape: equant, equant, bladed, bladed
Percentages: hematite = 10, pyroxene = 1, muscovite = 1, illite = 88
Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: fining upward beds from fine to coarse grained)
Name: quartz arenite
Notes: Low silicification. Some grains appear sutured and concavo-convex contacts with other grains, appearing to have undergone compaction. More rock frags. Illite looks dark and grungy (due to hematite). Fairly high porosity.
Hand Sample description:
Medium grained sandstone with fining upwards beds from coarse to fine grained sandstone with granules at base of coarse beds and some floating granules in upper beds. Beds at 45 degrees to core axis. Light pink colour.

Thin section description: MR-80: 160.3_FP
Percentage:
- Clasts = 62
- Matrix = 25
- Cement = 10
- Porosity = 3

Rock fabric: grain supported
Texture:
Grainsize: medium to coarse (from fine to very coarse)
Sorting: poorly
Roundness: subangular to subrounded
Shape: equant and prolate
Textural maturity: immature
Style of packing: point contacts, some sutured
Mineral composition:
- qtz = 55
- feld =
- rock frag.= 15
- mica = 2
- clay = illite = 23, dickite = 3
- other = calcite <1 , hematite = 2, pyroxene <1

Matrix:
Ave. size: silt, clay, medium, fine, clay, clay
Sorting: poorly
Roundness: subrounded, subrounded, subrounded, angular, angular, subrounded
Shape: equant, equant, equant, bladed, bladed, equant
Percentages: calcite = 1, hematite = 7, pyroxene = 2, muscovite = 10, illite = 65, dickite = 15
Rock fragments: quartzite and poly qtz
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: litharenite
Notes: Most grains have silica overgrowths. Hematite concentrates in illite in some places giving illite a dirty brown colour. Some grains have sutured contacts and have muscovite in between the grains.
Hand Sample description:
Coarse grained sandstone. Massive appearance. Pink to red colour. Abundant clay.

Thin section description: MR-80: 170.1_FP
Percentage:
- Clasts = 57
- Matrix = 30
- Cement = 3
- Porosity = 10

Rock fabric: grain supported
Texture:

Grainsize: coarse to very coarse (from fine to very coarse)
Sorting: poorly sorted
Roundness: subangular to rounded
Shape: equant and prolate
Textural maturity: immature
Style of packing: point contacts
Mineral composition:
qtz = 45
feld =
rock frag.= 20
mica = muscovite = 2
clay = illite = 18, dickite = 14
other = pyroxene <1, hematite =1

Matrix:
Ave. size: clay, fine, medium, clay/very fine, clay
Sorting: poorly
Roundness: subrounded, subrounded, angular, angular, subrounded
Shape: equant, equant, bladed, bladed, equant
Percentages: hematite = 2, pyroxene = 1, muscovite = 10, illite = 50, dickite = 37
Rock fragments: quartzite, polycrystalline quartz, igneous with mica
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: litharenite
Notes: Illite has higher interference colours. Most grains have silica overgrowths. High percentage of rock frags. Some grains are abraded at porosity sites.
Hand Sample description:
Coarse grained sandstone. Massive appearance. Clay rich. Cream coloured.

Thin section description: MR-80: 174.8_FP
Percentage:
Clasts = 56
Matrix = 35
Cement = 6
Porosity = 3
Rock fabric: grain supported
Texture:
Grainsize: coarse to medium grained (from fine to coarse)
Sorting: poorly sorted
Roundness: subangular to subrounded
Shape: equant and prolate
Textural maturity: immature
Style of packing: point contacts, some sutured at stylolites
Mineral composition:
qtz = 40
feld =
rock frag.= 20
mica = muscovite = 2
clay = illite = 28, dickite = 10
other = pyroxene = <1, hematite <1

Matrix:
Ave. size: clay, very fine, medium, clay, clay/very fine
Sorting: poorly
Roundness: subrounded, subrounded, angular, subangular, angular
Shape: equant, equant, bladed, equant, bladed
Percentages: hematite = 2, pyroxene = 2, muscovite = 10, dickite = 25, illite = 61
Rock fragments: quartzite and polycrystalline quartz
Orientation of matrix: random, muscovite aligned along stylolites
Cement: silica
Sedimentary structures: fining upward beds from fine to coarse

Name: litharenite
Notes: Most all grains have silica overgrowths, shows grains are subrounded. High amount of clay. Illite books get up to very fine grained, clay sized illite has high birefringence. Muscovite appears between grains in the stylolites.
Hand Sample description:
Coarse grained sandstone with fining upward foresets from very coarse to medium grained beds at a 45 degree angle to core axis. Clay rich. Cream colour.

Thin section description: MR-80: 184.4_FP
Percentage:
Clasts = 35
Matrix = 60
Cement = 2
Porosity = 3
Rock fabric: matrix supported
Texture:
Grainsize: silt to very fine grained
Sorting: well sorted
Roundness: angular
Shape: equant
Textural maturity: immature
Style of packing: point contacts
Mineral composition:
qtz = 40
feld =
rock frag.=
mica = 10
clay = illite = 40, dickite = 5
other = hematite = 5
Matrix:
Ave. size: clay/fine, silt, clay, clay/fine
Sorting: well sorted
Roundness: angular, subrounded, subrounded, angular
Shape: bladed, equant, equant, bladed
Percentages: muscovite = 20, hematite = 10, dickite = 10, illite = 60
Rock fragments: none
Orientation of matrix: random
Cement: silica
Sedimentary structures: horizontally bedded, fining upwards from very fine grained sandstone to siltstone
Name: quartz arenite
Notes: Silica overgrowths are on most of the quartz grains. Quartz grains are angular. Mainly composed of illite. At base, have quartz grains with the illite. In the siltstone area, dominantly illite at silt and clay size, in the very fine grained area with the qtz grains, the illite gets up to fine grained. Mica aligns itself along bedding. Porosity is higher in coarser beds.
Hand Sample description:
Red siltstone. Horizontally bedded very fine grained sandstone layers alternating with siltstone layers at base into siltstone at top.

Thin section description: MR-80: 189.9_FP
Percentage:
Clasts = 70
Matrix = 20
Cement = 5
Porosity = 5
Rock fabric: grain supported
Texture:
Grainsize: medium to coarse grained (from medium to very coarse matrix, up to pebbles in floating grains)
Sorting: very poorly sorted
Roundness: subangular to subrounded
Shape: equant and prolate

Textural maturity: immature
Style of packing: point contacts, minor sutured
Mineral composition:
- qtz = 45
- feld =
- rock frag.= 30
- mica = muscovite = 2
- clay = illite = 18, dickite = 5
- other = pyroxene < 1, hematite < 1

Matrix:
Ave. size: clay, coarse, coarse, clay/fine, clay
Sorting: poorly
Roundness: subrounded, subrounded, angular, angular, subrounded
Shape: equant, equant, bladed, bladed, equant
Percentages: hematite = 2, pyroxene = 2, muscovite = 10, illite = 65, dickite = 15
Rock fragments: polycrystalline quartz, some quartzites
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: litharenite
Notes: Illite is grungy looking where hematite is associated, also larger grains have higher interference colours. Can also appear as books with lower interference colours. Most grains have silica overgrowths. Some grains look like they have stylolites between grain contacts. Rock frags mostly poly qtz.
Hand Sample description:
Fining upward beds from very coarse grained to medium grained sandstone. Floating pebbles from granule size to medium sized pebble. Clay rich. Bleached areas giving cream colour with green overprinted colour, rest of areas are purple.

Thin section description: MR-80: 192.4_FP
Percentage:
- Clasts = 67
- Matrix = 20
- Cement = 3
- Porosity = 10

Rock fabric: grain supported
Texture:
Grainsize: granule (matrix from fine to medium)
Sorting: very poorly sorted
Roundness: subangular
Shape: equant and prolate
Textural maturity: immature
Style of packing: point contacts
Mineral composition:
- qtz = 35
- feld =
- rock frag.= 40
- mica =
- clay = illite = 16, dickite = 8
- other = pyroxene <1, hematite = 1

Matrix:
Ave. size: medium, clay, clay, clay
Sorting: poorly
Roundness: subrounded, subrounded, angular, subrounded
Shape: equant, equant, bladed, equant
Percentages: pyroxene = 1, hematite = 5, illite = 65, dickite = 29
Rock fragments: quartzite, igneous
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: litharenite

Notes: Abraded grains. Some have thin silica overgrowths. Hematite concentrate in the illite, darkening the colour.
Hand Sample description:
Granule sandstone with a large pebble. Fine grained sandstone as matrix. Mainly composed of granules. Light pink colour. Clay rich. Most granules are quartz.

Thin section description: MR-80: 196.1_FP
Percentage:
Clasts = 62
Matrix = 20
Cement = 3
Porosity = 15
Rock fabric: grain supported
Texture:
Grainsize: coarse (up to granule)
Sorting: poorly sorted
Roundness: angular to subangular
Shape: equant and prolate
Textural maturity: immature
Style of packing: point contacts
Mineral composition:
qtz = 61
feld =
rock frag.= 15
mica = 1
clay = illite = 15, dickite = 8
other =
Matrix:
Ave. size: medium, clay, clay
Sorting: poorly
Roundness: angular, angular, subrounded
Shape: bladed, bladed, equant
Percentages: muscovite = 5, illite = 65 , dickite = 30
Rock fragments: quartzite
Orientation of matrix: random
Cement: silica
Sedimentary structures: none
Name: litharenite
Notes: Grains are abraded. Some grains have thin silica overgrowths. Illite has higher birefringence.
Hand Sample description:
Coarse grained sandstone with floating granules. Massive appearance. Clay rich. Cream coloured.

APPENDIX 6- Whole rock geochemical analytical data

Group 4A method

Hole ID	Northing	Easting	Elevation	Sample number	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba ppm	Ni ppm	Sc ppm	LOI %	TOT/C %	TOT/S %	SUM %
MR-60	6451576	519721.25	263.32	4050	98.15	0.59	0.65	0.04	0.06	0.06	0.15	0.04	0.03	< .01	0.001	6	< 20	1	0.2	0.02	< .01	99.97
MR-60	6451576	519725.97	254.5	4051	97.71	0.92	0.72	0.06	0.07	0.05	0.25	0.06	0.02	< .01	0.0013	14	< 20	1	0.1	0.03	0.01	99.96
MR-60	6451576	519730.75	245.73	4052	97.78	1.26	0.4	0.05	0.05	0.02	0.25	0.06	0.02	< .01	< .0005	17	< 20	1	0.1	0.01	< .01	99.99
MR-60	6451576	519735.59	236.99	4053	97.37	0.9	0.88	0.04	0.04	0.01	0.24	0.04	0.03	< .01	0.0008	< 5	< 20	1	0.4	0.04	< .01	99.96
MR-60	6451576	519740.47	228.28	4054	97.45	0.98	0.69	0.04	0.02	0.04	0.28	0.09	0.03	< .01	0.0009	17	< 20	1	0.3	0.02	< .01	99.93
MR-60	6451576	519745.41	219.6	4055	96.38	0.81	1.38	0.09	0.07	0.03	0.23	0.06	0.04	< .01	0.0011	8	< 20	4	0.8	0.16	< .01	99.9
MR-60	6451576	519750.38	210.96	4056	97.46	0.78	0.66	0.03	0.02	0.02	0.23	0.04	0.01	< .01	0.0008	8	< 20	1	0.7	0.02	< .01	99.96
MR-60	6451576	519755.41	202.34	4057	98.04	0.61	0.63	0.02	0.02	0.02	0.17	0.03	< .01	< .01	0.001	9	< 20	1	0.4	0.04	< .01	99.96
MR-60	6451575.5	519760.5	193.77	4058	97.42	0.71	0.78	0.02	0.04	0.01	0.16	0.03	< .01	< .01	0.0006	9	< 20	1	0.8	0.06	< .01	99.97
MR-60	6451575.5	519765.66	185.22	4059	98.25	0.59	0.5	0.02	0.02	< .01	0.15	0.03	< .01	< .01	0.0007	9	< 20	1	0.4	0.02	< .01	99.97
MR-60	6451575	519770.84	176.71	4060	97.89	0.58	0.79	0.02	0.02	< .01	0.15	0.02	< .01	< .01	0.0007	< 5	< 20	1	0.5	0.02	< .01	99.98
MR-60	6451574.5	519778.22	164.85	4063	95.95	1.74	0.68	0.06	0.03	0.01	0.51	0.07	0.02	< .01	0.0012	6	< 20	1	0.9	0.02	< .01	99.97
MR-60	6451574	519780.34	161.47	4065	94.17	2.87	1.19	0.05	0.03	< .01	0.59	0.07	0.02	< .01	0.0015	20	< 20	1	1	0.02	< .01	100
MR-60	6451574	519782.47	158.1	4067	93.27	2.71	1.49	0.1	0.08	< .01	0.39	0.08	0.04	< .01	0.0013	16	< 20	1	1.8	0.19	< .01	99.97
MR-60	6451574	519784.63	154.74	4069	93.44	3.45	0.95	0.04	0.04	0.02	0.34	0.08	0.02	< .01	0.0014	21	< 20	< 1	1.6	0.04	< .01	99.99
MR-60	6451573.5	519786.78	151.37	4071	94.03	2.83	1.36	0.04	0.03	0.02	0.23	0.11	0.02	< .01	0.0017	20	< 20	< 1	1.3	0.05	< .01	99.97
MR-60	6451573.5	519788.94	148.02	4073	95.87	1.97	1.12	0.03	0.02	0.02	0.26	0.06	0.02	< .01	0.0013	17	< 20	1	0.6	0.02	< .01	99.97
MR-60	6451573	519791.09	144.67	4075	93.05	3.24	1.78	0.04	0.02	0.01	0.33	0.08	< .01	< .01	0.0013	13	< 20	1	1.4	0.02	< .01	99.95
MR-60	6451573	519793.25	141.32	4077	89	6.41	1.13	0.02	0.02	0.03	0.21	0.09	0.01	< .01	0.001	23	< 20	1	3	0.05	< .01	99.93
MR-60	6451572.5	519795.44	137.98	4079	92.6	4.37	0.85	0.05	0.02	0.02	0.29	0.19	0.04	< .01	0.0016	22	< 20	2	1.5	0.06	< .01	99.94
MR-60	6451572.5	519797.63	134.65	4081	93.85	3.41	0.72	0.05	0.03	< .01	0.41	0.22	0.07	< .01	0.0012	19	< 20	1	1.2	0.02	< .01	99.96
MR-60	6451572	519799.84	131.32	4084	85.92	6.47	2.19	0.15	0.15	< .01	0.72	0.42	0.07	0.01	0.0012	24	< 20	2	3.8	0.49	0.35	99.9
MR-60	6451572	519802.06	128	4086	91.11	3.11	2.66	0.14	0.2	< .01	0.2	0.15	0.11	0.01	0.0013	13	< 20	1	2.2	0.35	0.01	99.9
MR-60	6451571.5	519804.25	124.68	4088	87.4	7.57	1.04	0.11	0.04	< .01	1.11	0.15	0.11	< .01	0.0012	22	< 20	2	2.4	0.03	0.01	99.93
MR-60	6451571.5	519806.47	121.36	4090	86.55	6.97	1.95	0.11	0.08	0.04	0.89	0.21	0.16	0.01	0.0016	15	< 20	2	2.9	0.1	< .01	99.87
MR-60	6451571	519808.69	118.04	4092	86.61	7.8	1.08	0.15	0.04	0.04	1.29	0.38	0.09	< .01	0.0014	28	< 20	2	2.4	0.06	0.01	99.89
MR-60	6451571	519810.88	114.71	4094	82.81	9.91	0.78	0.15	0.08	0.06	1.39	1.06	0.23	< .01	0.004	57	< 20	6	3.3	0.14	0.02	99.78
MR-60	6451571	519813.09	111.37	4097	75.59	15.66	1.28	0.12	0.09	0.11	0.92	0.27	0.17	< .01	0.0019	86	< 20	3	5.6	0.05	0.01	99.82
MR-60	6451570.5	519818.53	103.01	4102	74.48	14.39	1.1	2.59	0.08	0.11	2.46	0.2	0.04	< .01	0.0013	79	< 20	3	4.5	0.03	< .01	99.97
MR-60	6451570.5	519822.88	96.29	4106	72.92	13.44	2.11	1.65	0.17	0.67	6.66	0.16	0.03	0.02	0.0007	1361	< 20	6	2	0.03	< .01	99.97
MR-60	6451570.5	519828.25	87.87	4107	74.2	13.9	1.15	0.84	1.37	2.24	4.8	0.13	0.04	< .01	0.001	905	< 20	1	1.2	0.05	0.01	99.97
MR-60	6451570.5	519833.56	79.41	4108	74.74	12.54	2.52	1.11	0.31	1.66	5.74	0.25	0.04	0.03	0.002	1816	< 20	4	0.8	0.04	< .01	99.95
MR-35	6453344	519578.5	184.36	4169	97.16	1.13	0.7	0.04	0.01	0.04	0.3	0.05	0.02	< .01	0.001	< 5	< 20	< 1	0.5	0.05	< .01	99.96
MR-35	6453344	519573.13	175.92	4170	98.22	0.63	0.56	0.02	0.01	0.01	0.15	0.03	0.02	< .01	0.0008	7	< 20	< 1	0.3	0.02	< .01	99.95
MR-35	6453344	519567.78	167.49	4171	97.75	0.96	0.59	0.07	0.01	< .01	0.19	0.02	< .01	< .01	0.0008	5	< 20	< 1	0.4	0.09	0.01	100
MR-35	6453344	519562.38	159.09	4172	97.79	0.83	0.62	0.04	0.02	0.01	0.22	0.03	0.03	< .01	0.001	< 5	< 20	< 1	0.4	0.02	< .01	99.99
MR-35	6453344	519556.94	150.69	4173	95.56	1.9	1.16	0.12	0.05	0.06	0.45	0.06	0.03	< .01	0.0011	22	< 20	< 1	0.6	0.09	< .01	100
MR-35	6453344	519549.31	138.97	4176	96.1	2.1	0.54	0.14	0.03	0.02	0.44	0.07	0.03	< .01	0.001	20	< 20	1	0.5	0.01	< .01	99.99
MR-35	6453344	519547.13	135.63	4178	93.48	3.2	0.81	0.15	0.06	0.04	0.86	0.24	< .01	< .01	0.0014	23	< 20	1	1.1	0.05	< .01	99.95
MR-35	6453344	519544.94	132.29	4180	91.02	2.75	2.63	0.27	0.14	0.06	0.75	0.21	0.04	0.01	0.0014	21	< 20	1	2.1	0.39	< .01	99.98
MR-35	6453344	519542.75	128.95	4182	92.62	3.75	0.95	0.17	0.05	0.06	1.03	0.25	0.07	< .01	0.0021	25	< 20	1	1	0.06	0.01	99.96
MR-35	6453344	519540.53	125.61	4184	85.18	6.27	3.36	0.34	0.15	0.06	1.75	0.2	0.09	0.02	0.0022	33	< 20	1	2.5	0.31	< .01	99.93
MR-35	6453344	519538.34	122.28	4186	95.01	2.76	0.86	0.14	0.07	< .01	0.66	0.12	0.05	< .01	0.0014	21	< 20	1	0.3	0.1	< .01	99.97
MR-35	6453344	519536.13	118.95	4188	95.72	1.73	0.83	0.09	0.03	0.05	0.49	0.07	0.05	< .01	0.0012	8	< 20	< 1	0.9	0.02	0.03	99.96
MR-35	6453344	519533.91	115.62	4190	89.46	4.41	3.04	0.21	0.05	0.06	1.22	0.18	0.07	0.01	0.002	24	< 20	1	1.2	0.03	0.01	99.92
MR-35	6453344	519531.69	112.3	4192	94.03	2.94	0.65	0.15	0.03	0.04	0.82	0.18	0.09	< .01	0.0017	40	< 20	1	1	0.03	0.02	99.94
MR-35	6453344	519529.47	108.97	4194	93.68	3.13	0.87	0.13	0.03	0.02	0.87	0.24	0.05	< .01	0.0018	33	< 20	1	0.9	0.02	< .01	99.93
MR-35	6453344	519527.25	105.65	4196	94.25	2.78	0.89	0.11	0.03	0.02	0.71	0.06	0.04	< .01	0.0011	15	< 20	1	1.1	0.02	< .01	99.99
MR-35	6453344	519525.03	102.33	4198	92.95	2.87	1.97	0.11	0.05	0.05	0.78	0.1	0.05	< .01	0.0023	49	< 20	1	1	0.07	< .01	99.94
MR-35	6453344	519522.78	99.02	4200	93.08	3	1.46	0.11	0.08	0.05	0.82	0.08	0.06	< .01	0.0019	75	< 20	1	1.2	0.09	< .01	99.96
MR-39	6451512	520047.31	265.38	4218	96.45	0.7	1.56	0.12	0.1	0.06	0.17	0.08	0.03	< .01	0.0016	19	< 20	1	0.7	0.16	0.05	99.98

Hole ID	Northing	Easting	Elevation	Sample number	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba ppm	Ni ppm	Sc ppm	LOI %	TOT/C %	TOT/S %	SUM %
MR-39	6451512	520044.09	255.93	4219	85.08	7.9	2.3	0.26	0.04	0.06	1.89	0.31	0.11	< .01	0.0035	66	< 20	6	1.9	0.02	0.03	99.86
MR-39	6451512.5	520040.84	246.47	4220	97.79	0.86	0.67	0.04	0.01	0.05	0.24	0.03	0.02	< .01	0.0011	12	< 20	< 1	0.3	0.02	< .01	100.02
MR-39	6451512.5	520037.59	237.01	4221	97.65	0.98	0.55	0.05	0.01	0.03	0.26	0.04	< .01	< .01	0.0009	17	< 20	1	0.4	0.03	< .01	99.98
MR-39	6451513	520034.41	227.54	4222	97.95	0.54	0.87	0.03	0.02	0.02	0.16	0.02	0.03	< .01	0.0007	9	< 20	< 1	0.4	0.06	< .01	100.05
MR-39	6451513	520031.19	218.07	4223	98.24	0.59	0.55	0.03	0.02	0.04	0.16	0.05	< .01	< .01	0.0007	9	< 20	1	0.3	0.02	< .01	100
MR-39	6451513	520028.03	208.59	4224	98.24	0.7	0.51	0.03	0.01	0.03	0.16	0.03	0.01	< .01	0.0007	13	< 20	1	0.3	0.02	< .01	100.02
MR-39	6451513.5	520024.84	199.11	4225	97.55	1.1	0.6	0.06	0.02	0.02	0.27	0.04	0.03	< .01	0.0011	10	< 20	1	0.3	0.19	< .01	99.99
MR-39	6451513.5	520021.66	189.64	4226	97.72	0.9	0.57	0.05	0.02	0.05	0.2	0.05	0.05	< .01	0.0006	13	< 20	< 1	0.4	0.02	< .01	100.01
MR-39	6451514	520018.41	180.19	4227	97.07	0.68	0.78	0.03	0.02	0.04	0.17	0.03	< .01	< .01	0.0007	7	< 20	< 1	1.2	0.37	0.02	100.02
MR-39	6451514.5	520015.16	170.74	4228	97.71	0.9	0.62	0.04	0.01	0.03	0.22	0.04	0.03	< .01	0.0007	9	< 20	< 1	0.4	0.02	< .01	100
MR-39	6451515	520011.84	161.31	4229	97.67	0.68	0.86	0.03	0.03	0.06	0.15	0.06	0.02	< .01	0.0008	12	< 20	< 1	0.4	0.04	0.01	99.97
MR-39	6451515	520008.53	151.88	4230	97.89	0.74	0.52	0.03	0.01	0.05	0.19	0.04	0.03	< .01	0.0009	9	< 20	< 1	0.5	0.02	0.01	100
MR-39	6451515.5	520004.59	140.56	4232	96.64	0.93	0.86	0.03	0.02	0.06	0.21	0.04	0.02	< .01	0.0014	8	< 20	1	1.2	0.4	0.02	100.02
MR-39	6451515.5	520003.28	136.79	4234	84.24	9.63	1.26	0.18	0.05	0.02	1.66	0.35	0.06	< .01	0.0013	31	< 20	2	2.5	0.06	< .01	99.96
MR-39	6451516	520001.97	133.01	4236	80.38	12.17	1.08	0.22	0.04	0.06	1.46	0.55	0.07	< .01	0.0021	33	21	5	3.9	0.03	< .01	99.94
MR-39	6451516	520000.66	129.23	4238	90.45	5.1	0.77	0.2	0.06	0.03	1.44	0.47	0.08	< .01	0.002	20	73	1	1.5	0.03	< .01	100.11
MR-39	6451516	519999.34	125.45	4240	88.37	6.36	1.07	0.26	0.32	0.04	1.8	0.38	0.25	< .01	0.0021	23	34	2	1.3	0.04	0.03	100.16
MR-39	6451516	519998.03	121.68	4242	78.6	9.78	3.59	0.74	0.54	0.05	2.8	0.4	0.31	0.01	0.0018	15	106	5	3.4	0.29	< .01	100.24
MR-39	6451516	519996.72	117.9	4244	81.88	5.58	4.75	3.22	0.17	0.08	0.59	0.13	0.09	< .01	0.0015	35	3986	1	2.6	0.03	< .01	99.6
MR-39	6451516.5	519994.78	112.32	4245	83.24	4.51	4.35	4.15	0.3	0.06	0.07	0.16	0.15	0.01	0.0018	10	494	2	2.9	0.17	0.03	99.97
MR-39	6451516.5	519994.09	110.34	4247	70.76	15.65	1.35	3.23	0.15	0.15	2.35	1.22	0.06	< .01	0.0095	70	80	23	5	0.05	< .01	99.96
MR-39	6451516.5	519990.84	100.88	4252	47.65	25.63	2.58	9.07	0.39	0.11	3.42	0.49	0.15	0.01	0.0146	60	407	16	10.3	0.15	< .01	99.88
MR-39	6451516.5	519987.63	91.43	4257	60.09	17.18	6.58	2.67	5.05	2.71	2.04	0.79	0.26	0.02	0.0011	1956	< 20	14	2.2	0.1	0.5	99.82
MR-39	6451517	519984.41	81.97	4258	61.2	17.22	6.31	2.82	5.69	3.51	1.03	0.66	0.15	0.08	0.0033	1121	< 20	13	1	0.09	0.14	99.79
MR-39	6451517.5	519981.19	72.51	4259	74.64	13.32	1.48	0.78	0.78	2.14	5.37	0.13	0.07	0.01	< .0005	1000	< 20	1	1	0.03	< .01	99.83
MR-29	6451518.5	520016.5	271.42	4260	98.22	0.76	0.59	0.07	< .01	0.03	0.18	0.06	< .01	< .01	0.0015	18	28	< 1	0.1	0.03	< .01	100.02
MR-29	6451518.5	520011.47	262.78	4261	98.24	0.8	0.54	0.06	0.01	0.02	0.18	0.05	0.02	< .01	0.0014	20	< 20	< 1	0.1	0.02	0.01	100.02
MR-29	6451518.5	520005.94	253.27	4262	98.03	0.76	0.8	0.04	0.02	< .01	0.17	0.07	0.02	< .01	0.0017	20	< 20	< 1	0.1	0.02	< .01	100.02
MR-29	6451518.5	520001.41	245.49	4263	97.68	1.19	0.47	0.05	0.02	0.02	0.33	0.05	0.01	< .01	0.0011	11	< 20	< 1	0.2	0.02	< .01	100.03
MR-29	6451518.5	519996.38	236.86	4264	97.78	0.96	0.63	0.05	0.02	0.02	0.27	0.06	0.01	< .01	0.001	14	< 20	1	0.2	0.02	< .01	100
MR-29	6451518.5	519991.31	228.23	4265	98.21	0.7	0.53	0.03	0.01	0.01	0.19	0.02	0.01	< .01	0.0007	13	< 20	1	0.3	0.02	< .01	100.02
MR-29	6451518.5	519986.28	219.6	4266	97.49	1.18	0.55	0.07	0.02	0.01	0.35	0.05	0.02	< .01	0.0011	10	< 20	1	0.3	0.02	< .01	100.04
MR-29	6451519	519981.22	210.97	4267	97.58	1.19	0.63	0.04	0.02	0.01	0.35	0.02	0.01	< .01	0.0013	12	< 20	< 1	0.2	0.04	0.01	100.06
MR-29	6451519	519976.16	202.35	4268	98.35	0.42	0.49	0.01	0.01	0.01	0.11	0.02	< .01	< .01	0.0012	13	< 20	< 1	0.6	0.01	< .01	100.03
MR-29	6451519	519971.09	193.73	4269	98.26	0.77	0.52	0.03	0.01	0.03	0.22	0.03	0.04	< .01	0.0008	12	< 20	1	0.1	0.02	< .01	100.02
MR-29	6451519	519966	185.11	4270	98.34	0.6	0.55	0.02	0.01	0.01	0.15	0.03	0.02	< .01	0.0007	12	< 20	1	0.3	0.02	< .01	100.03
MR-29	6451519	519960.94	176.5	4271	97.8	0.87	0.63	0.04	0.01	0.02	0.23	0.02	< .01	< .01	0.0008	< 5	< 20	< 1	0.4	0.12	0.01	100.04
MR-29	6451519	519955.84	167.89	4272	98.5	0.45	0.53	0.02	0.01	0.02	0.11	0.03	0.01	< .01	0.0011	6	< 20	< 1	0.3	0.03	0.02	99.99
MR-29	6451519.5	519953.81	164.44	4273	94.95	2.35	1.05	0.13	0.05	0.01	0.69	0.04	0.01	< .01	0.0013	14	< 20	< 1	0.8	0.11	< .01	100.09
MR-29	6451519.5	519951.78	161	4274	95.18	2.71	0.52	0.11	0.02	0.03	0.79	0.13	0.01	< .01	0.001	17	< 20	< 1	0.6	0.08	< .01	100.11
MR-29	6451519.5	519949.75	157.56	4275	93.6	3.14	1.1	0.16	0.05	0.01	0.92	0.16	0.02	< .01	0.0009	17	< 20	1	0.9	0.11	< .01	100.06
MR-29	6451519.5	519947.69	154.12	4276	87.55	6.05	3.11	0.19	0.03	0.02	1.48	0.17	0.08	< .01	0.0017	35	< 20	2	1.4	0.06	< .01	100.09
MR-29	6451519.5	519945.66	150.68	4277	92.28	4.26	1.65	0.07	0.02	0.02	0.67	0.21	0.01	< .01	0.0011	19	156	1	0.9	0.02	< .01	100.12
MR-29	6451519.5	519943.63	147.23	4278	78.27	14.99	0.5	0.09	0.03	0.01	0.75	0.41	0.04	< .01	0.0016	42	< 20	4	5.3	< .01	< .01	100.4
MR-29	6451519.5	519941.59	143.79	4279	90.26	1.83	6.36	0.06	0.05	0.03	0.32	0.34	0.05	0.01	0.0015	25	59	1	0.7	0.1	< .01	100.02
MR-29	6451519.5	519939.53	140.36	4280	83.43	10.65	0.55	0.07	0.03	0.03	0.83	0.39	0.12	< .01	0.002	33	< 20	3	4.1	0.02	0.02	100.2
MR-29	6451519.5	519937.5	136.92	4282	88.47	6.71	1.73	0.07	0.05	0.03	0.92	0.15	0.14	< .01	0.0012	19	< 20	2	1.8	0.02	0.02	100.08
MR-29	6451519.5	519935.47	133.48	4283	90.3	5.81	1.29	0.05	0.05	0.04	0.57	0.11	0.09	< .01	0.0012	21	< 20	1	1.8	0.01	< .01	100.11
MR-29	6451520	519933.41	130.04	4284	90.51	5.29	1.76	0.07	0.03	0.02	0.54	0.14	0.06	< .01	0.001	17	48	1	1.7	0.01	< .01	100.13

Hole ID	Northing	Easting	Elevation	Sample number	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba ppm	Ni ppm	Sc ppm	LOI %	TOT/C %	TOT/S %	SUM %
MR-29	6451520	519931.38	126.6	4285	89.91	5.6	1.83	0.08	0.03	0.02	1.03	0.14	0.07	< .01	0.0013	23	< 20	2	1.4	0.02	0.01	100.11
MR-29	6451520	519929.31	123.17	4287	75.33	15.56	1.12	0.69	0.08	0.09	2.35	0.32	0.01	< .01	0.0098	68	< 20	5	4.2	0.02	< .01	99.77
MR-29	6451520	519924.22	114.58	4288	45.91	23.43	1.68	11.73	0.29	0.07	1.01	1.3	0.1	< .01	0.028	53	92	25	14.2	3.56	0.01	99.77
MR-29	6451520	519919.09	105.99	4289	77.12	12.67	0.86	0.99	2.05	2.3	2.28	0.06	0.03	0.01	0.0008	325	< 20	1	1.4	0.06	0.01	99.8
MR-29	6451520.5	519913.97	97.41	4290	60.09	12.13	5.59	7.14	5.2	0.89	3.56	0.57	0.1	0.1	0.0106	4241	36	14	4	0.27	0.62	99.86
MR-29	6451520.5	519908.81	88.83	4291	75.49	3.07	2.94	6.58	8.64	0.17	1.27	0.1	0.09	0.06	0.0065	1278	< 20	2	1.3	0.22	< .01	99.86
MR-29	6451520.5	519903.69	80.25	4292	72.92	14.18	0.97	0.69	0.48	1.77	7.61	0.09	0.06	< .01	0.0006	2188	< 20	1	0.8	0.07	< .01	99.82
MR-29	6451521	519898.53	71.67	4293	71.6	15.12	1.29	0.8	0.78	2.33	6.24	0.07	0.06	0.01	0.0008	1608	< 20	1	1.3	0.04	< .01	99.78
MR-28	6448823.5	519820.78	216.07	4295	85.42	8.88	0.88	0.23	0.07	0.08	2.29	0.14	0.16	< .01	0.0015	32	< 20	3	1.7	0.03	< .01	99.86
MR-28	6448823.5	519816.34	207.11	4296	85.21	7.07	2.94	0.21	0.08	0.04	1.7	0.65	0.18	< .01	0.0018	43	< 20	3	1.7	0.07	0.01	99.79
MR-28	6448823.5	519811.91	198.15	4297	84.4	6.9	3.66	0.24	0.15	0.04	1.25	0.59	0.17	0.01	0.0023	44	< 20	3	2.4	0.24	0.01	99.81
MR-28	6448823.5	519807.44	189.21	4298	89.57	5.49	1.35	0.2	0.07	0.04	1.47	0.16	0.2	< .01	0.001	22	< 20	1	1.3	0.08	0.02	99.86
MR-28	6448823.5	519802.94	180.28	4299	89.3	6.23	0.71	0.2	0.04	0.05	1.69	0.16	0.14	< .01	0.0011	19	< 20	1	1.3	0.04	0.02	99.83
MR-28	6448823.5	519801.16	176.71	4300	94.92	2.34	0.97	0.1	0.05	0.06	0.65	0.09	0.05	< .01	0.001	17	< 20	2	0.6	0.07	< .01	99.84
MR-28	6448823.5	519799.34	173.14	4301	83.08	10.74	0.54	0.2	0.06	0.02	1.95	0.23	0.19	< .01	0.0014	54	40	2	2.8	0.02	< .01	99.82
MR-28	6448823.5	519797.53	169.57	4302	92.62	4.05	0.82	0.08	0.04	0.03	0.45	0.06	0.05	< .01	0.001	19	< 20	1	1.7	0.05	< .01	99.91
MR-28	6448823.5	519795.72	166	4303	90.6	5.4	0.86	0.13	0.03	0.03	1.48	0.15	0.04	< .01	0.001	20	< 20	1	1.2	0.02	< .01	99.93
MR-28	6448823.5	519793.91	162.44	4305	93.48	3.23	0.83	0.11	0.04	< .01	0.88	0.31	0.03	< .01	0.0012	32	< 20	1	1	0.06	< .01	99.91
MR-28	6448823.5	519792.09	158.88	4306	96.84	1.44	0.67	0.04	0.02	< .01	0.39	0.05	0.02	< .01	0.0008	7	< 20	1	0.5	0.08	< .01	99.97
MR-28	6448823.5	519790.28	155.31	4307	90.04	3.57	2.8	0.28	0.12	< .01	1.03	0.23	0.01	0.01	0.0016	34	< 20	1	1.9	0.35	0.02	100
MR-28	6448823.5	519788.47	151.75	4308	98.14	0.88	0.48	0.03	0.01	< .01	0.24	0.03	< .01	< .01	0.0009	9	< 20	1	0.2	0.02	< .01	100.02
MR-28	6448823.5	519786.66	148.19	4309	95.37	2.36	0.6	0.12	0.02	0.01	0.69	0.1	0.04	< .01	0.0016	17	< 20	1	0.6	0.02	0.04	99.91
MR-28	6448823.5	519784.81	144.64	4310	98.33	0.56	0.55	0.02	0.01	< .01	0.15	0.03	0.03	< .01	0.0007	16	< 20	1	0.3	0.02	< .01	99.99
MR-28	6448823.5	519783	141.08	4311	98.14	0.77	0.47	0.03	0.01	< .01	0.21	0.03	0.03	< .01	0.0012	12	< 20	< 1	0.3	0.02	< .01	99.99
MR-28	6448823.5	519781.16	137.53	4312	98.33	0.71	0.55	0.03	0.01	< .01	0.2	0.03	0.01	< .01	0.0008	13	< 20	< 1	0.1	0.02	< .01	99.97
MR-11	6448957	514666.06	243.37	4313	97.87	0.51	0.93	0.06	0.05	< .01	0.12	0.02	0.01	< .01	0.0007	< 5	< 20	< 1	0.4	0.11	< .01	99.98
MR-11	6448960.5	514669.41	234.57	4314	95.75	2.24	0.58	0.06	0.02	0.01	0.61	0.06	0.02	< .01	0.0013	8	< 20	< 1	0.6	0.02	0.02	99.96
MR-11	6448963.5	514672.75	225.76	4315	97.72	1.01	0.63	0.04	0.01	< .01	0.27	0.03	0.05	< .01	0.001	12	< 20	1	0.2	0.02	< .01	99.97
MR-11	6448967	514676.06	216.93	4316	97.91	0.67	0.75	0.03	0.01	< .01	0.16	0.04	< .01	< .01	0.0008	8	< 20	< 1	0.4	0.02	0.03	99.98
MR-11	6448970.5	514679.34	208.09	4317	89.59	2.35	3.97	0.47	0.3	0.01	0.63	0.11	0.04	0.01	0.0022	20	< 20	1	2.5	0.73	< .01	99.97
MR-11	6448971.5	514680.66	204.55	4318	93.25	2.24	2	0.19	0.1	0.04	0.62	0.06	< .01	< .01	0.0014	20	< 20	1	1.4	0.27	< .01	99.91
MR-11	6448973	514681.97	201	4319	91.92	4.55	0.74	0.13	0.03	< .01	1.23	0.17	0.05	< .01	0.0013	26	< 20	1	1.1	0.02	< .01	99.93
MR-11	6448974	514683.25	197.46	4320	71.33	4.91	12.11	1.13	1.11	< .01	1.25	0.09	0.21	0.01	0.001	15	< 20	2	7.8	2.27	0.04	99.96
MR-11	6448975.5	514684.56	193.91	4321	90.52	4.42	1.62	0.2	0.14	0.01	1.23	0.56	0.05	< .01	0.0012	19	< 20	1	1.2	0.19	< .01	99.95
MR-11	6448977	514685.88	190.35	4322	92.04	2.79	2.09	0.21	0.11	0.01	0.77	0.33	< .01	0.01	0.0014	21	< 20	2	1.5	0.27	< .01	99.87
MR-11	6448978	514687.16	186.8	4323	96.05	1.65	0.94	0.08	0.04	0.06	0.42	0.11	0.03	< .01	0.0013	36	< 20	< 1	0.6	0.07	< .01	99.99
MR-11	6448979.5	514688.44	183.24	4324	91.84	4.66	0.76	0.13	0.04	< .01	1.29	0.1	0.05	< .01	0.0011	26	< 20	1	1.1	0.04	< .01	99.97
MR-11	6448980.5	514689.72	179.68	4326	91.09	4.98	0.93	0.16	0.03	0.04	1.42	0.19	0.02	< .01	0.0011	29	< 20	1	1.1	0.06	< .01	99.97
MR-11	6448982	514691.03	176.12	4327	91.51	4.79	0.82	0.13	0.03	0.02	1.32	0.23	0.02	< .01	0.0013	24	< 20	1	1.1	0.06	< .01	99.98
MR-11	6448983	514692.28	172.56	4328	90.05	4.09	2.1	0.17	0.07	0.02	1.08	0.68	0.05	< .01	0.0022	45	< 20	5	1.6	0.15	0.01	99.92
MR-45	6451506	519917.06	267.68	4329	96.87	0.65	1.19	0.09	0.06	0.05	0.17	0.06	0.02	< .01	0.0011	22	< 20	< 1	0.8	0.13	0.01	99.97
MR-45	6451506.5	519920.09	258.17	4330	97.56	0.71	0.61	0.03	0.01	0.01	0.19	0.04	0.02	< .01	0.0011	34	< 20	< 1	0.8	0.02	< .01	99.99
MR-45	6451507	519923.16	248.66	4331	97.42	0.74	0.91	0.04	0.01	0.04	0.2	0.03	0.02	< .01	0.0016	17	< 20	< 1	0.6	0.35	0.08	100.01
MR-45	6451507	519926.22	239.14	4332	97.87	0.72	0.65	0.04	0.01	0.01	0.19	0.12	0.03	< .01	0.0012	14	< 20	4	0.3	0.03	< .01	99.94
MR-45	6451507	519929.25	229.61	4333	97.71	0.85	0.63	0.03	0.01	0.05	0.23	0.06	< .01	< .01	0.0034	14	< 20	1	0.4	0.04	< .01	99.98
MR-45	6451507	519932.25	220.08	4334	97.17	1.26	0.64	0.05	0.01	0.06	0.34	0.06	< .01	< .01	0.0017	14	< 20	1	0.4	0.04	< .01	100
MR-45	6451507	519935.25	210.54	4335	98.29	0.67	0.56	0.03	0.01	0.01	0.17	0.03	0.02	< .01	0.0008	12	21	< 1	0.2	0.02	< .01	100
MR-45	6451507	519938.19	200.98	4336	98.14	0.67	0.46	0.02	0.01	< .01	0.16	0.03	0.03	< .01	0.0011	13	< 20	< 1	0.5	0.06	< .01	100.03
MR-45	6451507	519941.13	191.42	4337	98.33	0.5	0.6	0.03	0.01	0.06	0.14	0.03	< .01	< .01	0.001	28	24	1	0.3	0.02	< .01	100

Hole ID	Northing	Easting	Elevation	Sample number	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba ppm	Ni ppm	Sc ppm	LOI %	TOT/C %	TOT/S %	SUM %
MR-45	6451507	519944	181.86	4338	98.37	0.59	0.43	0.04	0.01	< .01	0.14	0.03	0.01	< .01	0.0007	12	< 20	< 1	0.4	0.02	< .01	100.02
MR-45	6451507	519946.88	172.28	4339	97.13	0.76	1.06	0.07	0.06	0.01	0.19	0.08	0.02	< .01	0.001	10	< 20	4	0.6	0.13	< .01	99.98
MR-45	6451507	519949.72	162.69	4340	98.85	0.35	0.54	0.01	0.01	0.03	0.09	0.03	< .01	< .01	0.0008	11	< 20	< 1	0.1	0.01	< .01	100.02
MR-45	6451506.5	519950.84	158.86	4341	89.03	6.35	0.97	0.23	0.04	0.02	1.56	0.2	0.07	< .01	0.0019	39	< 20	2	1.5	0.08	< .01	99.98
MR-45	6451506.5	519951.97	155.02	4342	92.25	3.77	1.76	0.13	0.02	0.03	1.04	0.16	0.02	< .01	0.0021	26	111	1	0.8	0.04	< .01	100
MR-45	6451506.5	519953.06	151.18	4343	93.6	2.93	1.42	0.18	0.06	0.03	0.81	0.16	0.03	< .01	0.0017	23	< 20	1	0.8	0.13	< .01	100.03
MR-45	6451506.5	519954.19	147.34	4344	88.9	5.86	1.93	0.18	0.03	0.04	1.46	0.21	0.05	< .01	0.0016	39	< 20	2	1.3	0.03	0.01	99.97
MR-45	6451506.5	519955.31	143.5	4345	93.77	3.07	1.39	0.06	0.02	0.01	0.57	0.1	0.06	< .01	0.0018	25	< 20	2	0.9	0.02	< .01	99.96
MR-45	6451506.5	519956.41	139.66	4347	95.32	2.72	0.64	0.04	0.02	< .01	0.35	0.07	0.04	< .01	0.0016	19	< 20	1	0.8	0.02	< .01	100.01
MR-45	6451506.5	519957.5	135.81	4348	93.45	1.54	3.37	0.05	0.06	0.01	0.21	0.26	0.03	< .01	0.002	22	33	1	1	0.09	< .01	100
MR-45	6451506	519958.59	131.97	4349	92.78	3.92	1.34	0.07	0.04	0.03	0.7	0.09	0.16	< .01	0.0015	23	< 20	1	0.8	0.03	0.02	99.94
MR-45	6451506	519959.69	128.12	4350	90.31	5.39	0.91	0.14	0.17	0.05	1.35	0.28	0.21	< .01	0.0019	21	< 20	2	1.1	0.03	0.02	99.92
MR-45	6451506	519960.81	124.28	4351	88.39	6.72	1.61	0.09	0.05	0.03	0.89	0.15	0.16	< .01	0.0021	26	< 20	2	1.8	0.04	0.02	99.9
MR-45	6451506	519961.91	120.43	4352	89.25	6.53	1.01	0.08	0.04	0.07	0.76	0.2	0.16	< .01	0.0021	20	< 20	1	1.8	0.02	0.02	99.91
MR-45	6451506	519963	116.59	4353	90.31	5.41	1	0.1	0.04	0.04	1.02	0.16	0.14	< .01	0.0022	28	< 20	2	1.7	0.07	0.02	99.93
MR-45	6451506	519964.09	112.74	4355	57.66	22.88	5.79	2.15	0.07	0.07	2.26	1.72	0.11	< .01	0.0085	75	48	18	7.2	0.01	< .01	99.93
MR-45	6451506	519966.84	103.13	4356	59.76	20.1	1.56	7.16	0.32	0.05	1.66	0.96	0.18	< .01	0.0989	53	86	21	8.1	0.05	< .01	99.97
MR-45	6451506	519969.59	93.52	4357	75.94	12.04	1.94	1.02	1.05	1.75	5.24	0.15	0.07	0.01	0.001	1643	< 20	2	0.6	0.04	0.06	99.99
MR-45	6451506	519972.34	83.9	4358	71.82	14.45	2.28	1.31	2.14	2.88	3.56	0.36	0.07	0.01	0.0017	1514	< 20	3	0.9	0.01	0.03	99.95
MR-45	6451506	519975.06	74.29	4359	64.49	16.94	4.02	3.12	2.38	4.19	1.84	0.72	0.18	0.03	0.0025	352	< 20	9	2	0.04	0.04	99.96
MR-45	6451506	519977.81	64.68	4360	67.82	15.87	4.13	1.54	3.58	3.32	2.3	0.49	0.15	0.07	0.0013	1646	< 20	7	0.5	0.05	0.07	99.95
MR-46	6451508	520045.5	192.9	4362	98.1	0.82	0.43	0.04	0.01	0.05	0.19	0.04	0.03	< .01	0.0012	12	< 20	1	0.3	0.01	< .01	100.01
MR-46	6451508	520045.5	182.9	4363	97.57	0.9	0.62	0.04	0.02	0.03	0.21	0.03	< .01	< .01	0.0014	12	< 20	< 1	0.6	0.02	< .01	100.03
MR-46	6451508	520045.5	172.9	4364	97.12	1.18	0.6	0.05	0.02	0.02	0.3	0.08	0.03	< .01	0.0013	15	84	1	0.6	0.02	< .01	100.02
MR-46	6451508	520045.5	162.9	4365	97.79	1.01	0.72	0.04	0.03	0.08	0.23	0.02	0.03	< .01	0.0007	11	< 20	1	0.1	0.03	< .01	100.05
MR-46	6451508	520045.5	152.9	4366	92.73	1.39	2.91	0.25	0.21	0.05	0.33	0.28	0.02	0.01	0.002	11	< 20	6	1.7	0.49	< .01	99.88
MR-46	6451508	520045.5	142.9	4367	97	1.27	0.89	0.07	0.04	0.06	0.28	0.06	0.04	< .01	0.0008	32	< 20	1	0.2	0.09	0.01	99.92
MR-46	6451508	520045.5	138.9	4368	72.42	11.86	6.98	0.34	0.1	0.11	1.05	2.28	0.34	0.02	0.0058	282	< 20	37	3.8	0.06	0.03	99.34
MR-46	6451508	520045.5	134.9	4370	88.46	5.94	2.72	0.13	0.03	0.1	0.91	0.17	0.03	0.01	0.0019	30	< 20	2	1.4	0.02	< .01	99.9
MR-46	6451508	520045.5	130.9	4371	91.22	4.61	1.03	0.2	0.05	0.08	1.2	0.2	0.1	< .01	0.0011	24	< 20	2	1.2	0.09	0.01	99.9
MR-46	6451508	520045.5	126.9	4372	91.46	4.71	0.72	0.22	0.07	0.08	1.09	0.17	0.2	< .01	0.002	26	< 20	2	1.1	0.03	0.04	99.83
MR-46	6451508	520045.5	122.9	4373	87.09	7.77	0.87	0.16	0.05	0.08	1.11	0.21	0.21	< .01	0.0014	22	31	2	2.2	0.02	0.04	99.76
MR-46	6451508	520045.5	118.9	4374	91.32	4.98	0.69	0.09	0.03	0.06	0.78	0.17	0.07	< .01	0.001	18	< 20	1	1.7	0.03	0.01	99.89
MR-46	6451508	520045.5	114.9	4375	88.96	5.84	1.85	0.15	0.04	0.06	1.45	0.1	0.13	< .01	0.0014	27	48	2	1.3	0.03	0.02	99.89
MR-46	6451508	520045.5	110.9	4377	78.01	13.33	2.56	0.19	0.06	0.11	1.67	0.1	0.04	< .01	0.0013	60	< 20	1	3.9	0.01	< .01	99.98
MR-46	6451508	520045.5	100.9	4378	79.65	12.56	1.14	0.94	0.07	0.07	3.05	0.04	0.04	< .01	0.0007	62	< 20	2	2.4	0.04	< .01	99.98
MR-46	6451508	520045.5	90.9	4379	77.41	12.64	0.85	1.34	0.09	0.18	5.05	0.05	0.06	< .01	0.0011	419	< 20	2	2.3	0.14	< .01	100.02
MR-46	6451508	520045.5	80.9	4380	77.93	12.18	0.73	1.14	0.1	0.25	6.21	0.03	0.04	< .01	0.0006	772	< 20	2	1.3	0.04	< .01	99.99
MR-46	6451508	520045.5	70.9	4381	73.16	13.85	1.21	1.5	0.11	0.38	7.09	0.08	0.06	< .01	0.0007	1204	< 20	1	2.4	0.07	0.11	99.98
MR-46	6451508	520045.5	60.9	4382	77.35	11.94	0.86	1.17	0.08	0.3	6.1	0.05	0.05	< .01	0.0008	745	< 20	3	2	0.08	< .01	99.99
MR-46	6451508	520045.5	50.9	4383	77.12	11.99	0.77	1.09	0.1	0.37	6.09	0.02	0.03	< .01	< .0005	620	< 20	4	2.3	0.68	0.02	99.95
MR-34	6451510	520012.28	190.25	4385	97.54	0.98	0.54	0.04	0.02	0.05	0.22	0.05	0.02	< .01	0.0014	16	< 20	1	0.5	0.03	< .01	99.97
MR-34	6451510	520009.03	180.79	4386	98.65	0.51	0.51	0.02	0.01	0.05	0.1	0.02	0.02	< .01	< .0005	7	54	< 1	0.1	0.02	< .01	100
MR-34	6451510	520005.81	171.33	4387	98.58	0.54	0.52	0.02	0.01	0.03	0.12	0.03	0.02	< .01	0.001	8	21	1	0.1	0.03	< .01	99.97
MR-34	6451510	520002.59	161.87	4388	97.71	1.03	0.54	0.04	0.02	0.04	0.25	0.06	0.04	< .01	0.0012	15	< 20	1	0.2	0.04	0.01	99.93
MR-34	6451510	519999.38	152.4	4389	98.84	0.34	0.52	0.01	0.01	0.06	0.05	0.02	< .01	< .01	0.0009	15	115	< 1	0.1	0.03	< .01	99.97
MR-34	6451510	519996.19	142.92	4390	97.62	1.11	0.66	0.04	0.01	0.05	0.28	0.04	0.01	< .01	0.0008	15	96	1	0.1	0.02	< .01	99.93
MR-34	6451510	519994.91	139.13	4391	89.4	6.39	0.62	0.21	0.03	0.07	1.76	0.2	0.04	< .01	0.0012	30	22	2	1.2	0.03	< .01	99.93
MR-34	6451510	519993.66	135.34	4393	84.49	10.05	0.63	0.11	0.02	0.06	0.83	0.23	0.05	< .01	0.0017	31	< 20	3	3.4	0.02	< .01	99.88

Hole ID	Northing	Easting	Elevation	Sample number	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba ppm	Ni ppm	Sc ppm	LOI %	TOT/C %	TOT/S %	SUM %
MR-34	6451510	519992.38	131.54	4394	93.87	3.32	0.71	0.13	0.03	0.03	0.89	0.19	0.04	< .01	0.001	13	< 20	1	0.7	0.04	< .01	99.91
MR-34	6451510	519991.13	127.75	4395	92.39	2.77	2.25	0.15	0.16	0.05	0.69	0.44	0.14	< .01	0.0016	31	91	2	0.9	0.04	0.01	99.96
MR-34	6451510	519989.84	123.95	4396	85.63	4.61	6.19	0.35	0.2	0.06	1.34	0.27	0.12	< .01	0.0017	11	131	1	1.2	0.06	< .01	99.99
MR-34	6451510	519988.91	121.11	4397	84.44	3.71	5	1.85	0.47	0.03	0.5	0.37	0.29	0.01	0.0011	14	788	2	3.1	0.22	< .01	99.87
MR-34	6451510	519987.31	116.36	4398	83.34	6	4.75	0.72	0.3	0.09	1.52	0.15	0.15	0.01	0.0017	18	802	3	2.8	0.28	0.04	99.93
MR-34	6451510	519986.06	112.57	4400	44.84	33.51	1.51	5.21	0.12	0.13	5.37	0.4	0.02	< .01	0.0008	30	178	16	8.8	0.02	0.01	99.95
MR-34	6451510	519982.94	103.07	4401	75.85	10.88	2.91	2.64	0.32	0.08	2.34	0.48	0.17	< .01	0.001	106	57	6	4.3	0.03	< .01	99.99
MR-34	6451510	519979.81	93.57	4402	72.39	15.02	1.23	0.86	1.02	2.2	5.71	0.12	0.04	0.01	0.0007	1662	< 20	1	1.2	0.05	0.01	99.98
MR-34	6451510	519976.72	84.07	4403	76.69	12.25	1.4	0.87	0.16	1.27	6.1	0.13	0.05	0.01	0.0006	832	< 20	1	1	0.01	< .01	100.02
MR-43	6451512	520030.16	191.69	4405	98.19	0.69	0.56	0.03	0.02	0.07	0.15	0.02	0.03	< .01	< .0005	5	< 20	1	0.2	0.03	< .01	99.97
MR-43	6451512.5	520027.69	182.01	4406	97.59	0.95	0.57	0.05	0.01	0.09	0.24	0.05	0.01	< .01	0.0008	8	36	< 1	0.4	0.02	< .01	99.97
MR-43	6451512.5	520025.22	172.33	4407	97.76	0.96	0.46	0.03	0.01	0.04	0.23	0.06	0.03	< .01	0.0011	16	< 20	1	0.4	0.01	< .01	99.99
MR-43	6451513	520022.72	162.64	4408	98.25	0.48	0.62	0.02	0.01	0.04	0.1	0.04	0.02	< .01	0.0008	< 5	< 20	1	0.4	0.03	< .01	99.99
MR-43	6451513.5	520020.25	152.96	4409	93.98	3.34	0.55	0.17	0.02	0.04	0.87	0.12	0.06	< .01	0.0019	15	24	1	0.8	0.04	< .01	99.96
MR-43	6451514	520017.78	143.28	4410	97.16	1.25	0.53	0.04	0.01	0.04	0.31	0.04	0.02	< .01	0.0007	5	36	< 1	0.6	0.03	< .01	100.01
MR-43	6451514	520016.78	139.41	4411	61.48	26.42	0.53	0.1	0.05	0.08	0.44	0.55	0.12	< .01	0.0076	46	< 20	9	10.1	0.02	0.02	99.89
MR-43	6451514	520015.81	135.54	4412	82.15	11.5	0.72	0.12	0.04	0.08	1.08	0.28	0.11	< .01	0.0071	39	< 20	4	3.8	0.04	0.02	99.9
MR-43	6451514.5	520014.81	131.66	4413	90.94	5.2	0.78	0.08	0.05	0.07	0.57	0.35	0.09	< .01	0.0098	20	< 20	2	1.8	0.04	0.03	99.95
MR-43	6451514.5	520013.84	127.79	4414	93.9	3.3	0.55	0.11	0.04	0.04	0.84	0.17	0.14	< .01	0.0079	15	< 20	1	0.8	0.04	0.03	99.91
MR-43	6451514.5	520012.84	123.92	4416	92.71	3.55	0.72	0.12	0.05	0.07	0.91	0.52	0.18	< .01	0.0102	20	< 20	4	1	0.03	0.04	99.86
MR-43	6451515	520011.84	120.05	4417	87.61	7.47	0.73	0.27	0.06	0.06	2.14	0.11	0.11	< .01	0.0058	8	21	3	1.4	0.02	0.01	99.97
MR-43	6451515	520010.88	116.17	4418	89.83	5.8	0.78	0.21	0.15	0.07	1.64	0.18	0.17	< .01	0.0103	8	29	1	1.1	0.05	0.02	99.95
MR-43	6451515	520009.88	112.3	4419	89.71	5.74	0.71	0.25	0.05	0.07	1.6	0.32	0.08	< .01	0.0107	14	28	3	1.4	0.05	0.01	99.95
MR-43	6451515.5	520008.91	108.43	4421	71.03	17.38	0.99	1.25	0.07	0.05	4.53	0.61	0.13	< .01	0.0097	374	36	20	3.8	0.02	< .01	99.9
MR-43	6451516	520006.44	98.75	4422	74.59	12.78	1.2	4.8	0.09	0.07	0.52	0.48	0.04	< .01	0.0094	53	69	10	5.4	< .01	< .01	100
MR-43	6451516.5	520003.97	89.06	4423	62.83	13.27	6.81	6.35	1.62	1.52	2.52	0.7	0.14	0.01	0.0119	831	42	17	4.1	0.02	0.26	99.98
MR-43	6451516.5	520001.5	79.38	4424	60	15.36	6.51	4.64	5.71	2.89	0.9	0.85	0.15	0.08	0.0172	345	58	25	2.8	0.27	0.07	99.96
MR-43	6451517	519999.03	69.7	4425	58.13	15.53	7.14	6.91	1.44	1.08	3.77	0.67	0.11	0.04	0.024	769	56	25	5	0.02	0.14	99.94
MR-40	6451511.5	520052.19	262.31	4427	97.46	0.46	1.19	0.05	0.06	0.07	0.1	0.03	0.06	< .01	0.0121	7	< 20	1	0.5	0.1	0.04	100
MR-40	6451512	520050.41	252.48	4428	95.8	1	1.52	0.12	0.1	0.03	0.26	0.04	0.06	< .01	0.0092	16	< 20	1	1	0.2	0.01	99.95
MR-40	6451512.5	520048.63	242.64	4429	96.32	1.48	1	0.07	0.03	0.03	0.42	0.09	0.03	< .01	0.0096	15	< 20	1	0.5	0.09	0.01	99.99
MR-40	6451512.5	520046.88	232.8	4430	97.74	0.93	0.52	0.05	0.02	0.04	0.28	0.06	0.04	< .01	0.011	< 5	< 20	1	0.3	0.03	0.02	100
MR-40	6451513	520045.13	222.96	4431	98.15	0.68	0.52	0.03	0.01	0.02	0.2	0.05	0.03	< .01	0.0063	< 5	< 20	1	0.3	0.04	< .01	99.99
MR-40	6451513.5	520043.41	213.12	4432	97.89	0.85	0.46	0.03	0.02	0.05	0.24	0.06	0.07	< .01	0.0111	11	< 20	1	0.3	0.03	< .01	99.99
MR-40	6451514	520041.69	203.28	4433	97.6	1.07	0.5	0.07	0.02	0.04	0.29	0.02	0.04	< .01	0.0087	10	22	1	0.3	0.03	0.02	99.96
MR-40	6451514	520040	193.43	4434	98.47	0.56	0.48	0.02	0.01	0.01	0.15	0.02	0.04	< .01	0.0071	5	26	1	0.2	0.04	0.03	99.97
MR-40	6451514.5	520038.31	183.59	4435	98.14	0.71	0.59	0.02	0.02	0.03	0.18	0.04	0.04	< .01	0.0074	< 5	< 20	1	0.2	0.02	< .01	99.98
MR-40	6451515	520036.63	173.74	4436	98.18	0.62	0.6	0.04	0.02	0.04	0.14	0.03	0.05	< .01	0.0066	14	< 20	1	0.2	0.03	< .01	99.94
MR-40	6451515.5	520034.97	163.89	4437	98.22	0.61	0.65	0.03	0.02	< .01	0.13	0.05	0.06	< .01	0.0119	8	< 20	1	0.2	0.02	< .01	99.98
MR-40	6451516	520033.31	154.04	4439	97.9	0.93	0.65	0.05	0.01	0.05	0.21	0.06	0.03	< .01	0.0095	11	< 20	< 1	0.1	0.03	0.01	100.01
MR-40	6451516.5	520031.66	144.2	4440	97.43	1.28	0.55	0.04	0.02	0.06	0.32	0.06	0.04	< .01	0.011	< 5	< 20	1	0.2	0.02	< .01	100.01
MR-40	6451517	520031	140.26	4441	79.69	3.2	11.38	0.35	0.23	0.04	0.79	1.72	0.18	0.01	0.0062	52	< 20	16	2.1	0.56	< .01	99.7
MR-40	6451517	520030.31	136.32	4442	80.01	12.49	0.99	0.1	0.03	0.05	0.66	0.55	0.11	< .01	0.0079	48	< 20	3	4.9	0.02	< .01	99.91
MR-40	6451517.5	520029.34	130.41	4443	91.3	5.11	0.78	0.08	0.04	0.05	0.64	0.14	0.17	< .01	0.0042	11	< 20	1	1.6	0.02	0.01	99.92
MR-40	6451517.5	520028.69	126.47	4444	88.6	6.33	0.76	0.18	0.07	0.05	1.44	0.29	0.34	< .01	0.0096	27	< 20	2	1.7	0.02	0.05	99.77
MR-40	6451518	520028.03	122.53	4445	90.08	5.25	1.67	0.11	0.04	0.06	1	0.12	0.09	< .01	0.0081	19	< 20	2	1.5	0.02	0.01	99.94
MR-40	6451518	520027.38	118.59	4446	91.29	3.85	2.35	0.12	0.37	0.05	0.97	0.1	0.32	< .01	0.0007	17	< 20	3	0.5	0.01	< .01	99.93
MR-40	6451518.5	520026.72	114.65	4448	51.3	25.31	3.37	5.44	0.12	0.06	4.34	1.79	0.02	< .01	0.0309	123	84	33	8.1	0.02	< .01	99.91
MR-40	6451519	520025.09	104.8	4449	69.06	16.56	1.77	3.45	0.09	0.1	3.66	0.8	< .01	< .01	0.0194	484	39	13	4.4	0.04	< .01	99.99

Hole ID	Northing	Easting	Elevation	Sample number	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba ppm	Ni ppm	Sc ppm	LOI %	TOT/C %	TOT/S %	SUM %
MR-40	6451519.5	520023.47	94.96	4450	66.86	15.44	4	3.86	0.1	0.08	2.68	0.58	0.26	0.01	0.0081	505	53	16	5.9	0.47	1.29	99.84
MR-40	6451520	520021.84	85.11	4451	60.23	16.91	7.78	3.84	0.07	0.07	3.51	0.78	0.06	0.01	0.0136	535	62	18	6.6	0.85	2.12	99.94
MR-40	6451520.5	520020.22	75.26	4452	56.67	18.74	7.95	3.62	0.07	0.07	4.19	0.94	0.06	0.02	0.013	677	104	17	7.5	1.39	2.7	99.94
MR-40	6451521.5	520018.59	65.41	4453	49.22	17.77	11.89	4.57	0.12	0.17	5.49	1.11	0.06	0.05	0.0183	1107	102	17	9.3	2.03	4.02	99.9
MR-40	6451522	520016.97	55.56	4454	72.62	9.65	6.58	3.41	0.1	0.08	2.13	0.54	0.03	0.03	0.0089	149	53	10	4.8	0.66	1.27	100
MR-60	6451576	519745.41	219.6	4456 dup	96.56	0.88	1.18	0.06	0.05	0.04	0.23	0.07	0.07	< .01	0.0067	13	< 20	5	0.7	0.1	< .01	99.86
MR-60	6451573	519791.09	144.67	4457 dup	92.75	3.12	1.96	0.05	0.03	0.04	0.28	0.08	0.05	< .01	0.0107	18	< 20	1	1.6	0.03	0.01	99.98
MR-35	6453344	519544.94	132.29	4458 dup	90.83	2.82	2.62	0.27	0.13	0.02	0.79	0.24	0.03	0.01	< .0005	20	< 20	1	2.2	0.38	< .01	99.96
MR-39	6451514.5	520015.16	170.74	4459 dup	97.67	0.91	0.61	0.04	0.01	0.02	0.24	0.05	0.02	< .01	< .0005	14	< 20	1	0.4	0.02	< .01	99.97
MR-29	6451518.5	519996.38	236.86	4460 dup	97.54	1.04	0.46	0.04	0.01	0.03	0.28	0.06	0.02	< .01	< .0005	15	< 20	< 1	0.5	0.03	< .01	99.99
MR-29	6451520	519933.41	130.04	4461 dup	89.76	5.05	2.35	0.08	0.03	0.03	0.51	0.15	0.07	< .01	0.0007	22	< 20	2	1.9	0.02	< .01	99.94
MR-28	6448823.5	519790.28	155.31	4462 dup	89.64	3.75	2.83	0.28	0.11	0.04	1.07	0.22	0.02	0.01	0.0014	36	< 20	1	2	0.35	0.01	99.97
MR-11	6448983	514692.28	172.56	4463 dup	91.38	3.91	1.68	0.13	0.05	0.02	1.07	0.54	0.05	< .01	0.0016	45	< 20	5	1.1	0.09	< .01	99.94
MR-45	6451506	519959.69	128.12	4464 dup	89.35	5.54	0.96	0.13	0.19	0.01	1.44	0.27	0.22	< .01	0.0015	22	< 20	2	1.8	0.03	< .01	99.92
MR-46	6451508	520045.5	118.9	4465 dup	91.33	5.01	0.76	0.08	0.02	0.01	0.83	0.16	0.06	< .01	0.0012	24	< 20	1	1.7	0.05	< .01	99.97
MR-34	6451510	519991.13	127.75	4466 dup	91.91	2.97	2.58	0.14	0.12	0.02	0.83	0.45	0.09	< .01	0.0017	77	118	2	0.8	0.03	0.01	99.94
MR-43	6451515	520009.88	112.3	4467 dup	89.56	5.74	0.98	0.24	0.03	0.03	1.62	0.32	0.08	< .01	0.0025	32	< 20	3	1.3	0.02	< .01	99.91
MR-40	6451517.5	520029.34	130.41	4468 dup	89.41	5.87	0.75	0.14	0.06	0.01	1.21	0.27	0.27	< .01	0.0017	31	< 20	2	1.8	0.01	0.04	99.8
MR-60	6451574	519784.63	154.74	RE 4069	93.35	3.45	0.88	0.04	0.04	< .01	0.32	0.09	< .01	< .01	0.0016	19	< 20	1	1.8	0.04	< .01	99.98
MR-39	6451512.5	520040.84	246.47	RE 4220	97.89	0.8	0.66	0.04	0.02	0.02	0.23	0.03	< .01	< .01	0.0011	14	< 20	< 1	0.3	0.01	< .01	99.99
MR-29	6451519	519976.16	202.35	RE 4268	98.41	0.43	0.47	0.01	0.01	< .01	0.13	0.02	0.02	< .01	0.0013	12	< 20	< 1	0.5	0.01	< .01	100.01
MR-29	6451520.5	519913.97	97.41	RE 4290	60.06	12.13	5.6	7.11	5.2	0.85	3.63	0.57	0.11	0.1	0.0109	4260	< 20	14	4	0.27	0.64	99.86
MR-28	6448823.5	519781.16	137.53	RE 4312	98.36	0.75	0.59	0.03	0.02	< .01	0.18	0.02	0.02	< .01	0.0008	22	< 20	< 1	< .1	0.02	< .01	99.98
MR-45	6451506.5	519955.31	143.5	RE 4345	94.06	3.01	1.34	0.06	0.02	< .01	0.53	0.1	0.05	< .01	0.0016	21	23	1	0.8	0.02	0.01	99.97
MR-34	6451510	519996.19	142.92	RE 4390	97.61	1.1	0.64	0.04	0.01	0.03	0.28	0.04	< .01	< .01	0.0009	7	33	1	0.2	0.02	< .01	99.96
MR-40	6451512.5	520046.88	232.8	RE 4430	97.69	0.95	0.48	0.04	0.02	0.04	0.28	0.06	0.03	< .01	0.0103	16	< 20	1	0.4	0.03	< .01	100
MR-40	6451519	520025.09	104.8	RE 4449	69.05	16.49	1.77	3.46	0.09	0.09	3.72	0.81	0.02	< .01	0.0192	479	38	14	4.4	0.05	< .01	99.98
MR-46	6451508	520045.5	118.9	RE 4465	91.38	4.96	0.83	0.08	0.02	0.02	0.82	0.16	0.07	< .01	0.0017	17	< 20	1	1.6	0.02	< .01	99.94
				4051B PULP	50.74	20.72	6.36	0.54	8.22	6.56	1.51	0.29	0.12	0.1	0.0011	342	23	5	4.5	1.15	< .01	99.71
				4094B PULP	50.15	20.69	6.24	0.54	8.28	6.61	1.69	0.29	0.12	0.11	0.0011	344	< 20	4	5	1.13	< .01	99.75
				4108B PULP	50.31	20.72	6.25	0.54	8.25	6.58	1.6	0.29	0.1	0.1	0.0012	359	< 20	5	5	1.19	0.01	99.78
				4200B PULP	50.32	20.57	6.42	0.55	8.25	6.52	1.63	0.29	0.12	0.1	0.0012	343	24	3	5	1.13	0.01	99.82
				4245B PULP	51.23	20.17	6.3	0.52	8.22	6.51	1.56	0.29	0.1	0.1	0.0012	331	< 20	4	4.7	1.12	0.02	99.74
				4259B PULP	50.23	20.61	6.3	0.53	8.19	6.44	1.63	0.29	0.14	0.1	0.0011	351	< 20	4	5.2	1.17	0.01	99.7
				4286 PULP	49.95	20.69	6.23	0.53	8.29	7.01	1.56	0.29	0.13	0.1	0.0012	343	< 20	4	4.9	1.02	< .01	99.72
				4294 PULP	50.24	20.58	6.2	0.54	8.15	6.5	1.64	0.29	0.16	0.1	0.0009	362	< 20	4	5.2	1.15	0.01	99.64
				4325 PULP	50.26	20.71	6.37	0.53	8.3	7.16	1.54	0.29	0.12	0.1	0.001	341	< 20	4	4.3	1.16	0.01	99.72
				4354 PULP	50.8	20.54	6.31	0.55	8.3	6.37	1.56	0.29	0.13	0.1	0.0014	334	< 20	4	4.8	1.17	< .01	99.79
				4361 PULP	50.33	20.5	6.2	0.55	8.15	6.68	1.68	0.28	0.15	0.1	0.0011	355	< 20	4	5.1	1.23	0.01	99.76
				4376 PULP	50.54	20.58	6.26	0.54	8.27	6.41	1.63	0.29	0.12	0.11	0.0009	333	< 20	5	4.9	1.1	0.01	99.69
				4384 PULP	50.31	20.67	6.36	0.54	8.31	6.44	1.61	0.29	0.15	0.1	0.0008	333	< 20	4	4.9	1.17	< .01	99.72
				4399 PULP	50.92	20.51	6.23	0.54	8.26	6.33	1.52	0.29	0.11	0.1	0.0009	326	< 20	5	4.9	1.1	0.01	99.75
				4404 PULP	50.15	20.55	6.29	0.53	8.22	6.48	1.76	0.29	0.13	0.1	0.001	334	< 20	4	5.2	1.17	< .01	99.73
				4420 PULP	50.61	20.62	6.29	0.52	8.23	6.32	1.56	0.3	0.14	0.1	0.0018	331	24	5	5	1.12	0.01	99.73
				4426 PULP	50.46	20.44	6.22	0.53	8.29	6.46	1.75	0.29	0.08	0.1	0.0008	334	< 20	5	5.1	1.18	< .01	99.76
				4447 PULP	50.72	20.47	6.21	0.53	8.21	6.56	1.63	0.29	0.15	0.1	< .0005	330	< 20	4	4.9	1.11	0.01	99.81
				4455 PULP	50.96	20.35	6.3	0.53	8.16	6.3	1.64	0.29	0.11	0.1	0.0008	339	< 20	4	5	1.18	< .01	99.78
				4469 PULP	54.24	15.55	7.29	3.03	4.22	1.71	2.18	0.74	0.33	0.13	0.0134	504	61	13	10.4	1.88	0.04	99.89
				ACMEStandard	61.7	13.78	5.85	2.36	4.68	4.08	1.41	0.59	0.98	0.53	0.4384	403	35	23	3.4	2.42	5.31	99.85

Sample number	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba ppm	Ni ppm	Sc ppm	LOI %	TOT/C %	TOT/S %	SUM %
ACMEStandard	61.48	13.86	5.88	2.35	4.71	4.14	1.41	0.6	0.99	0.54	0.4325	399	46	23	3.4	2.5	5.35	99.85
ACMEStandard	61.64	13.85	5.77	2.36	4.7	4.17	1.42	0.6	1	0.53	0.4385	402	37	24	3.4	2.44	5.37	99.92
ACMEStandard	62.61	13.76	5.73	2.29	4.56	4.01	1.4	0.58	0.96	0.51	0.4337	383	32	23	3.4	2.41	5.32	100.3
ACMEStandard	61.61	13.82	5.87	2.35	4.7	4.09	1.43	0.59	0.97	0.54	0.442	403	31	23	3.4	2.47	5.3	99.87
ACMEStandard	61.69	13.8	5.92	2.35	4.67	4.1	1.37	0.59	0.99	0.53	0.4381	396	36	23	3.4	2.43	5.4	99.9
ACMEStandard	61.75	13.72	5.85	2.35	4.68	4.11	1.43	0.59	0.99	0.53	0.4299	386	27	23	3.4	2.46	5.32	99.88
ACMEStandard	61.84	13.79	5.84	2.35	4.67	4.12	1.41	0.59	0.99	0.52	0.435	397	32	23	3.4	2.38	5.3	100.01
ACMEStandard	61.8	13.79	5.8	2.35	4.67	4.09	1.4	0.59	1	0.53	0.4354	397	25	23	3.4	2.44	5.35	99.9
ACMEStandard	61.74	13.79	5.92	2.33	4.68	4.14	1.42	0.6	0.98	0.54	0.4331	421	30	23	3.4	2.47	5.36	100.03
ACMEStandard	61.46	13.89	5.87	2.38	4.73	4.14	1.39	0.6	1.01	0.54	0.4354	399	32	23	3.4	2.39	5.35	99.89

Group 4B method

Hole ID	Northing	Easting	Elevation	Sample number	Co ppm	Cs ppm	Ga ppm	Hf ppm	Nb ppm	Rb ppm	Sn ppm	Sr ppm	Ta ppm	Th ppm	U ppm	V ppm	W ppm	Zr ppm	Y ppm	La ppm	Ce ppm	Pr ppm	Nd ppm	Sm ppm	Eu ppm	Gd ppm	Tb ppm	Dy ppm	Ho ppm	Er ppm	Tm ppm	Yb ppm	Lu ppm
MR-39	6451516	520000.66	129.23	4238	1.5	< .1	5.5	7.2	7.6	11.2	< 1	316.4	0.8	18.3	3.1	10	0.7	268.2	6.2	26.2	52.4	5.82	19	3.2	0.51	2.07	0.2	0.83	0.17	0.44	0.1	0.51	0.09
MR-39	6451516	519999.34	125.45	4240	1.4	0.1	7.7	5.5	7.2	16.1	1	221	0.6	10.7	4	82	0.9	192.1	13.7	33	67.3	7.81	30.1	5.2	0.88	3.51	0.53	2.53	0.43	1.01	0.14	0.82	0.14
MR-39	6451516	519998.03	121.68	4242	2.7	0.2	10.6	7.8	9	31.5	1	52.7	1.1	19.6	4.7	46	2.1	296.3	10.2	40.5	85.3	10.18	42.7	7.3	0.97	3.76	0.3	1.44	0.3	0.65	0.13	0.86	0.14
MR-39	6451516	519996.72	117.9	4244	37.4	0.1	6.4	2.7	3	7.5	1	25.9	0.5	8.2	298.7	181	1.5	84.2	16.9	29.5	47.4	4.96	17.6	4.1	0.56	3.6	0.6	3.14	0.56	1.52	0.19	1.26	0.16
MR-39	6451516.5	519994.78	112.32	4245	15.6	0.1	8.1	2.8	4	1.4	< 1	10.5	0.6	10.3	27.5	109	0.8	80.8	8.5	16.5	35.4	3.95	15.6	3.2	0.62	1.65	0.2	1.05	0.27	0.67	0.11	0.56	0.08
MR-39	6451516.5	519994.09	110.34	4247	0.9	0.5	24.2	4	13.2	26.7	1	25.7	1.1	5	3.9	59	2.6	136.8	40.6	10.6	9.6	1.73	7.8	1.5	0.66	3.96	0.8	5.92	1.32	3.53	0.55	3.05	0.47
MR-39	6451516.5	519990.84	100.88	4252	97.8	1.1	40.5	2.1	5.8	55.6	3	45.7	0.3	2.8	4.7	140	< .1	77.4	9.1	7.5	15.2	1.89	9.4	2	0.29	1.88	0.21	1.39	0.27	0.71	0.12	0.85	0.11
MR-39	6451516.5	519987.63	91.43	4257	22	1.2	23.6	3.6	6.2	103.6	1	826.8	0.5	21.2	1.7	130	0.1	123.3	17.9	88.7	152.6	17.16	58.1	9.2	2.04	5.74	0.67	3.53	0.57	1.42	0.19	1.39	0.21
MR-39	6451517	519984.41	81.97	4258	19.5	0.6	22	3.8	6.8	55.6	2	407.8	0.7	10.2	0.8	112	0.3	140.5	20.8	35.8	66.9	7.77	29.2	6.7	1.22	4.87	0.69	3.7	0.74	1.9	0.28	1.87	0.24
MR-39	6451517.5	519981.19	72.51	4259	1.7	0.5	16.3	2.8	2.5	146.1	1	187	0.2	26.2	0.7	< 5	< .1	79.1	2.8	41.1	74.3	7.75	29.8	4.6	1.26	3.21	0.25	0.69	0.08	0.11	< .05	0.14	0.05
MR-29	6451518.5	520016.5	271.42	4260	1.2	< .1	2.2	4	1.7	1.9	< 1	117.4	< .1	4.2	2.6	5	0.3	139.5	7.1	18.5	37.6	3.9	13.2	2.7	0.38	1.74	0.27	1.03	0.23	0.58	0.09	0.73	0.07
MR-29	6451518.5	520011.47	262.78	4261	< .5	< .1	1.1	2.2	1.1	1	< 1	142.8	0.1	2.7	0.6	5	< .1	69.9	5.9	20	41.4	4.1	14.9	2.9	0.47	1.88	0.23	1.19	0.17	0.55	0.08	0.53	0.07
MR-29	6451518.5	520005.94	253.27	4262	1	< .1	1.2	5.4	1.7	< .5	< 1	136.8	0.1	5.3	1.1	8	< .1	184.3	8.4	18	36.8	3.53	13.3	2.9	0.46	1.79	0.25	1.25	0.28	0.74	0.09	0.73	0.1
MR-29	6451518.5	520001.41	245.49	4263	0.7	< .1	1.7	4.1	0.9	2.1	< 1	63.7	0.1	3.1	0.7	< 5	< .1	146.3	3.7	10.7	21.5	2.32	7.7	1.8	0.25	1.08	0.1	0.68	0.15	0.47	< .05	0.53	0.06
MR-29	6451518.5	519996.38	236.86	4264	0.8	< .1	0.9	3.8	1	1.6	< 1	66.9	0.1	2.8	1.4	< 5	< .1	134.5	3.7	11.3	21.6	2.5	8.1	1.1	0.29	1.2	0.13	0.73	0.11	0.34	0.07	0.48	0.05
MR-29	6451518.5	519991.31	228.23	4265	0.8	< .1	1.5	1	< .5	1.4	< 1	51.3	< .1	1.9	0.4	6	0.2	38.6	2.1	9.5	18.7	1.74	7.2	1.1	0.19	0.76	0.08	0.33	< .05	0.22	< .05	0.06	0.03
MR-29	6451518.5	519986.28	219.6	4266	0.6	0.1	1.5	2	0.8	3.4	< 1	83.7	0.1	1.9	0.9	14	1.6	78.9	3.5	10.7	21.7	2.4	7.7	1.4	0.29	1.13	0.15	0.54	0.16	0.28	0.06	0.31	0.06
MR-29	6451519	519981.22	210.97	4267	0.6	< .1	2.1	1.1	< .5	2.4	< 1	71.2	< .1	1.9	0.9	5	0.7	41.7	2.6	9.1	18.6	2.01	7.2	1.1	0.17	0.85	0.12	0.57	0.06	0.19	< .05	0.23	0.03
MR-29	6451519	519976.16	202.35	4268	1	< .1	0.7	1.7	< .5	< .5	< 1	98.8	< .1	1.9	1.4	5	0.4	49	3.9	14	27	2.79	9.4	1.8	0.32	1.09	0.21	0.87	0.13	0.27	0.06	0.27	0.04
MR-29	6451519	519971.09	193.73	4269	0.9	< .1	1.7	1.8	0.6	1.5	< 1	56.5	< .1	1.5	1.4	6	0.2	82.8	5.9	10.4	18	1.97	7.4	1.2	0.22	0.85	0.14	1.21	0.21	0.53	0.07	0.34	0.07
MR-29	6451519	519966	185.11	4270	< .5	< .1	1.1	1.8	< .5	0.8	< 1	46	< .1	1.4	0.9	< 5	0.1	54.6	3.8	8.4	15.9	1.65	5.2	1	0.16	0.98	0.12	0.61	0.13	0.3	< .05	0.28	0.08
MR-29	6451519	519960.94	176.5	4271	0.7	< .1	2.1	2.6	0.5	1.2	< 1	44.6	< .1	1.2	1.7	17	0.5	71	5.4	6.8	12.5	1.35	4.8	0.8	0.15	0.69	0.13	1.04	0.17	0.48	0.1	0.48	0.05
MR-29	6451519	519955.84	167.89	4272	< .5	< .1	0.9	2	< .5	< .5	< 1	85.5	< .1	2.6	1.7	16	0.5	58.3	2.3	7.7	15.3	1.48	5.6	0.8	0.26	0.73	0.09	0.53	0.07	0.22	< .05	0.29	0.03
MR-29	6451519.5	519953.81	164.44	4273	0.9	0.1	2.7	1.6	1.3	5.5	< 1	67.3	0.2	3.2	3.2	9	1.2	51.7	2	6.6	12.9	1.48	4.7	1.1	0.24	0.98	0.11	0.6	0.08	0.16	< .05	0.18	0.03
MR-29	6451519.5	519951.78	161	4274	0.7	< .1	2.5	2.6	2.9	6.3	1	126.8	0.5	7.3	3.7	28	0.7	94	2.8	13.7	24.2	2.43	8.1	1.5	0.39	1.34	0.16	0.75	0.1	0.28	< .05	0.28	0.05
MR-29	6451519.5	519949.75	157.56	4275	0.6	0.1	3.1	2.8	3.3	7.2	1	105.3	0.3	5.8	1.8	7	0.5	97.5	2.5	9.5	17.1	1.96	6.3	1.4	0.3	1.15	0.12	0.4	0.08	0.2	< .05	0.27	0.03
MR-29	6451519.5	519947.69	154.12	4276	0.8	0.2	6.1	4.7	4.2	12.9	1	460.7	0.5	14.8	3.2	18	0.5	143	5.8	30.6	61.3	6.1	21.7	3.6	0.64	2.08	0.23	0.77	0.17	0.49	0.09	0.59	0.1
MR-29	6451519.5	519945.66	150.68	4277	3.9	< .1	3.3	3.7	4.3	5.8	< 1	110.6	0.5	7.3	1.5	7	0.4	98.7	5.2	13.9	24.7	2.71	8.4	1.7	0.34	1.3	0.14	0.7	0.16	0.48	0.08	0.59	0.09
MR-29	6451519.5	519943.63	147.23	4278	0.7	0.3	14.7	4	9.9	10.4	1	316.4	0.9	8.9	1.2	10	0.4	137.4	6.7	31.9	55.6	6.32	24.3	4.4	0.87	2.69	0.28	0.9	0.21	0.53	0.1	0.88	0.13
MR-29	6451519.5	519941.59	143.79	4279	1.8	< .1	3	5.2	7.1	2.9	3	314.8	1.6	47.7	1.2	41	1.4	175.6	40.6	14.5	28.4	3.14	11	2.1	0.39	2.33	0.59	5.36	1.2	3.21	0.51	2.65	0.32
MR-29	6451519.5	519939.53	140.36	4280	0.9	0.2	11.5	6.7	7.7	9.5	< 1	739.9	0.8	14.1	1.8	8	0.9	199.8	12.2	36.7	67	7.43	28.2	5	0.99	3.91	0.52	2.05	0.41	1.02	0.17	1.43	0.22
MR-29	6451519.5	519937.5	136.92	4282	0.9	0.2	7.2	3	3.3	8.8	< 1	959.6	0.4	7.2	1	15	0.6	95.3	6.2	16.9	32.4	3.44	11.6	2.1	0.35	1.74	0.24	1.07	0.21	0.53	0.07	0.63	0.06
MR-29	6451519.5	519935.47	133.48	4283	0.7	0.3	6.1	2.3	3.1	6.1	1	634.7	0.4	8.6	0.6	10	0.7	84.6	4	17.8	32.8	3.36	11.7	2.2	0.37	1.57	0.17	0.68	0.15	0.47	0.08	0.66	0.08
MR-29	6451520	519933.41	130.04	4284	2	< .1	5.5	3.3	2.9	5.4	< 1	517.8	0.4	6.2	1	11	0.7	106.1	3.3	13.3	23.6	2.59	9.2	1.5	0.33	1.12	0.14	0.51	0.09	0.32	0.05	0.45	0.06
MR-29	6451520	519931.38	126.6	4285	1.5	< .1	7	2.4	3.5	9.1	< 1	534.2	0.4	9.3	1.3	16	0.8	82.3	4	20.8	39.8	4.4	14.7	3	0.55	2.24	0.17	0.73	0.13	0.37	0.08	0.48	0.08
MR-29	6451520	519929.31	123.17	4287	< .5	< .1	22.6	5.9	4.5	27.8	1	45.1	0.3	11.1	0.9	[illegible]	0.3	191.5	1.7	18.3	29	2.95	10.9	1.6	0.48	0.94	0.09	0.28	< .05	0.1	< .05	0.18	0.03
MR-29	6451520	519924.22	114.58	4288	14.6	0.6	33.2	7.5	20.7	20.5	1	105.7	1.2	37	7	320	0.7	254.4	27	79.6	129.9	13.35	46	7.2	2.45	4.74	0.78	5.48	0.95	2.74	0.5	3.25	0.51
MR-29	6451520	519919.09	105.99	4289	0.6	0.3	17.6	7.3	0.8	38.4	1	147.6	0.1	3.6	0.5	< 5	< .1	261.8	1.8	31.2	54.3	5.5	19.4	3.1	1.22	1.18	0.09	0.37	0.06	0.1	< .05	0.19	0.06
MR-29	6451520.5	519913.97	97.41	4290	19.2	1.9	20	2.7	6.4	169.5	1	85.3	0.6	2.8	0.7	71	0.9	84.4	15.8	13.7	22.4	2.53	9.1	2.6	0.73	2.77	0.42	2.9	0.56	1.43	0.28	1.4	0.23
MR-29	6451520.5	519908.81	88.83	4291	2.7	0.2	6.6	1	1.2	61	1	49.9	0.2	1.6	0.3	17	< .1	37	5.4	6.4	12.2	1.29	5.1	0.9	0.28	0.96	0.13	0.76	0.12	0.46	0.07	0.38	0.07
MR-29	6451520.5	519903.69	80.25	4292	1.2	0.6	13.7	1.5	1.2	196.5	1	225.9	< .1	18.8	1	< 5	< .1	63.9	3.9	42.1	76.2	8.46	30.7	6.8	1.9	3.77	0.41	1.29	0.1	0.26	< .05	0.17	0.05
MR-29	6451521	519898.53	71.67	4293	1.1	0.7	15.7	2.8	1	160.7	1	237.1	< .1	45.8	3.7	< 5	< .1	88.6	11.6	77.8	149.2	17.28	64.1	12.7	1.93	9.63	0.96	3.62	0.43	0.55	0.07	0.52	0.06
MR-28	6448823.5	519820.78	216.07	4295	< .5	0.3	12.7	2.6	2.9	27.5	< 1	851.6	0.2	7.8	0.6	19	0.1	83.5	7.7	25.1	47.5	5.02	20	3.1	0.69	3.04	0.38	1.41	0.2	0.45	0.08	0.44	0.08
MR-28	6448823.5	519816.34	207.11	4296	< .5	0.3	10.6	6.6	13.2	16.6	< 1	880.2	1.3	20.1	1.5	33	0.9	239.7	5	39.3	75.9	8.09	32.2	5.2	0.95	3.26	0.34	1.66	0.2	0.48	0.1	0.54	0.1
MR-28	6448823.5	519811.91	198.15	4297	1.1	< .1	9.2	6.4	13.4	12.9	< 1	926.9	1.8	31.6	2.8	41	1.1	227.4	6.5	46.5	90.2	9.54	36.2	6	0.93	3.59	0.33	1.28	0.21	0.44	0.1	1	0.13
MR-28	6448823.5	519807.44	189.21	4298	1.1	< .1	7.9	3	3.4	13.5	< 1	908.5	0.4	8.9	0.7	11	0.4	101.5	3.4	16.8	35	3.88	16.6	3.3	0.44	1.84	0.3	1.08	0.14	0.22	0.06	0.33	0.07
MR-28	6448823.5	519802.94	180.28	4299	0.5	0.3	6.1	2.4	3.3	15.8	< 1	690.4	0.4	6.7	1	7	0.3	77.9	3.4	20.1	39.9	4.36	15.4	3.1	0.46	2.13	0.24	0.95	0.11	0.27	< .05	0.31	0.06
MR-28	6448823.5	519801.16	176.71	4300	< .5	< .1	2.7	2.1	1.8	8.2	< 1	246.9	0.2	4.8	0.7	< 5	0.6	67.6	5.3	10.2	20.3	2.26	8.8	1.7	0.3	1.1	0.18	1	0.14	0.42	0.07	0.39	0.04
MR-28	6448823.5	519799.34	173.14	4301	< .5	0.1	10.4	3.3	5.2	21.6	2	908.8	0.6	10.6	1.3	9	0.5	98.4	6.3	42.8	85	9.19	36.3	6.9	1.23	4.34	0.38	1.59	0.22	0.54	0.09	0.52	0.1
MR-28	6448823.5	519797.53	169.57	4302	< .5	< .1	3.4	2	1.6	6.8	1	233.3	0.2	4.5	0.8	< 5	< .1	62.6	2.4	11.7	22.7	2.55	10.6	1.8	0.29	1.31	0.13	0.76	0.1	0.25	< .05	0.21	0.04
MR-28	6448823.5	519795.72	166	4303	1.1	< .1	5.8	2.4	3	14.7	1	165.7	0.3	6.8	0.4	7	< .1	87.2	2.9	10.8	21.3	1.96	7.6	1.3	0.31	0.84	0.11	0.58	0.09	0.25	0.06	0.25	0.05
MR-28	6448823.5	519793.91	162.44	4305	1	< .1	2.5	3.6	4.6	8.4	< 1	180.2	0.6	5.9	0.6	9	0.5	121.1	2.2	9.5	17.2	1.91	6.2	0.9	0.24	0.96	0.13	0.57	0.08	0.21	< .05	0.22	0.04
MR-28	6448823.5	519792.09	158.88	4306	< .5	< .1	1.1	1.9	0.9	3.9	< 1	29.6	0.1	1.7	0.5	< 5	< .1	81.2	2.1	5.2	10.2	0.99	3.8	0.3	0.12	0.44	0.08	0.49	0.06	0.2	< .05	0.18	0.04
MR-28	6448823.5	519790.28	155.31	4307	< .5	< .1	3.8	3.6	5.5	10	< 1	165	1	9.2	1.4	19	< .1	133.6	4.9	11.8	22.1	2.31	9.8	1.4	0.42	1.06	0.18	0.73	0.12	0.47	0.07	0.37	0.05
MR-28	6448823.5	519788.47	151.75	4308	< .5	< .1	1.2	2.5	0.7	4.1	< 1	46.9	0.1	2.9	0.4	< 5	0.6	71.3	2.6	7.1	17.2	1.63	5.4	0.7	0.17	0.64	0.11	0.45	0.07	0.21	< .05	0.24	0.04
MR-28	6448823.5	519786.66	148.19	4309	< .5	0.1	3.1	7.9	1.7	8	< 1	83	0.3	3.9	0.9	< 5	1	266.8	6.3	14.3	30.5	2.86	10.4	2	0.36	1.18	0.17	1.02	0.2	0.7	0.1	0.6	0.09
MR-28	6448823.5	519784.81	144.64	4310	0.8	0.4	0.8	2.4	0.7	4.6	2	61.3	0.2	2.1	0.5	< 5	1	73.1	3.2	11.7	23	2.34	7.7	1.3	0.23	0.93	0.13	0.52	0.13	0.3	< .05	0.34	0.06
MR-28	6448823.5	519783	141.08	4311	< .5	0.2	1.9	1.6	0.7	3.6	1	61.2	0.2	2.3	0.5	< 5	0.3	50.8	2.6	13.7	26.2	2.5	9.1	1.8	0.21	0.94	0.12	0.56	0.09	0.24	0.05	0.24	0.05
MR-28	6448823.5	519781.16	137.53	4312	< .5	< .1	1.5	1.2	0.5	2.9	< 1	63.7	0.1	1.9	0.4	< 5	0.6	49.7	2.9	14.4	26.8	2.84	9	1.4	0.26	0.68	0.13	0.66	0.09	0.23	0.05	0.14	0.05
MR-11	6448957	514666.06	243.37	4313	< .5	0.2	< .5	1.4	< .5	2.1	< 1	41.6	< .1	1.5	0.1	< 5	< .1	53.2	2.2	9.4	16.7	1.71	6.2	1.2	0.1	0.66	0.12	0.39	0.09	0.19	< .05	0.24	0.04
MR-11	6448960.5	514669.41	234.57	4314	< .5	< .1	3.3	5.3	1.2	6.7	< 1	54.9	0.2	2.8	0.6	< 5	0.2	177.9	7.5	9.7	21.8	2.07	8.5	1.5	0.26	1.17	0.2	1.25	0.22	0.68	0.11	0.69	0.1
MR-11	6448963.5	514672.75	225.76	4315	0.5	< .1	< .5	1.9	0.7	3	< 1	82.2	0.1	2.3	0.7	< 5	0.1	61.6	3.1	11.2	22.1	2.26	8.8	1.6	0.22	0.91	0.11	0.61	0.12	0.28	< .05	0.2	0.04
MR-11	6448967	514676.06	216.93	4316	< .5	< .1	1.3	2.8	0.9	2.3	< 1	43.7	0.1	1.9	1.1	< 5	0.5	101.4	3.5	7.1	13.7	1.45	6.3	0.9	0.15	0.73	0.11	0.58	0.1	0.35	< .05	0.26	0.05

Hole ID	Northing	Easting	Elevation	Sample number	Co ppm	Cs ppm	Ga ppm	Hf ppm	Nb ppm	Rb ppm	Sn ppm	Sr ppm	Ta ppm	Th ppm	U ppm	V ppm	W ppm	Zr ppm	Y ppm	La ppm	Ce ppm	Pr ppm	Nd ppm	Sm ppm	Eu ppm	Gd ppm	Tb ppm	Dy ppm	Ho ppm	Er ppm	Tm ppm	Yb ppm	Lu ppm
MR-11	6448970.5	514679.34	208.09	4317	1.4	< .1	2.3	4.3	2.8	6.2	< 1	129.3	0.3	4	1	20	1.2	162.2	43.5	14.1	28.6	2.96	13.8	2.4	0.53	4.27	1.11	6.86	1.37	3.33	0.4	2.22	0.29
MR-11	6448971.5	514680.66	204.55	4318	0.5	0.2	3	1.5	1.2	6.7	< 1	160	0.2	3.1	0.5	< 5	0.8	59.7	9.5	8.4	14.8	1.76	7	1.2	0.32	1.27	0.27	1.73	0.26	0.7	0.09	0.5	0.07
MR-11	6448973	514681.97	201	4319	< .5	< .1	6.7	3.2	3.7	13.4	< 1	218.7	0.5	6.1	0.3	< 5	0.9	100.5	10.5	14.7	29.5	3.38	13.5	3.1	0.65	1.87	0.38	1.78	0.31	0.88	0.09	0.54	0.13
MR-11	6448974	514683.25	197.46	4320	2.3	< .1	8.7	2.4	2.6	13.3	< 1	239.3	0.3	7	1.5	39	2.5	72	100.6	18.7	48.3	6.42	30	6.8	1.67	13.56	3.05	16.53	2.69	5.94	0.49	2.62	0.31
MR-11	6448975.5	514684.56	193.91	4321	1.7	0.3	6.5	6.7	11.4	17.1	1	92.8	1.2	18.9	1.7	7	1.4	240	13	19.2	37.1	4.28	17.6	3.6	0.63	2.87	0.42	2.08	0.35	1.29	0.15	0.91	0.14
MR-11	6448977	514685.88	190.35	4322	0.8	0.3	3.8	5.2	6	12	1	90.7	0.6	16.4	0.7	6	1.3	168.6	19.7	14.8	28.7	3.2	12.1	1.9	0.42	2.84	0.57	3.01	0.62	1.53	0.21	1	0.13
MR-11	6448978	514687.16	186.8	4323	< .5	0.2	2	2.4	1.9	6.7	< 1	61.8	0.3	6.3	0.7	< 5	0.3	72.6	3.3	14.1	26.8	2.79	9.6	1.7	0.18	0.94	0.12	0.63	0.08	0.2	< .05	0.29	0.04
MR-11	6448979.5	514688.44	183.24	4324	< .5	< .1	6.2	2.2	2.3	13.2	< 1	178.1	0.2	7.3	0.7	12	< .1	69	3.3	30.1	59.4	6.66	24.7	4	0.45	2.19	0.22	0.69	0.11	0.3	0.06	0.29	0.04
MR-11	6448980.5	514689.72	179.68	4326	< .5	0.2	6.5	3.8	4	14.4	< 1	169.6	0.4	8.9	1.1	11	0.8	103.7	4.6	30	55.1	5.34	19.7	3	0.58	2.31	0.22	0.93	0.16	0.31	0.07	0.43	0.06
MR-11	6448982	514691.03	176.12	4327	1.2	0.2	5.2	3.3	4.2	15.1	< 1	173.1	0.6	8.3	1.5	12	1.1	107.7	5.3	26.8	53	5.36	18.9	2.6	0.52	1.9	0.25	0.93	0.13	0.3	0.07	0.43	0.1
MR-11	6448983	514692.28	172.56	4328	< .5	< .1	5	11.7	11.5	11.9	< 1	285.9	1.2	42.9	3	29	1.9	408.1	10.2	44.4	85.8	8.88	36	5.8	0.68	3.72	0.39	1.39	0.31	0.79	0.17	0.89	0.15
MR-45	6451506	519917.06	267.68	4329	0.5	0.1	1.9	5.5	1.6	3.2	< 1	144.4	0.1	4.9	1.4	< 5	0.7	187.1	22.2	15.7	35.6	3.19	12.6	2.4	0.53	2.44	0.65	3.67	0.66	1.85	0.27	1.59	0.24
MR-45	6451506.5	519920.09	258.17	4330	< .5	< .1	2.6	1.7	1	2.7	< 1	140.3	< .1	3.5	1	< 5	0.5	58.6	7.5	16.6	36.7	3.37	14	2.8	0.51	1.97	0.26	1.32	0.27	0.74	0.09	0.74	0.06
MR-45	6451507	519923.16	248.66	4331	< .5	< .1	1.1	2.5	0.8	2.5	< 1	75.8	< .1	1.7	2.3	12	0.9	73.5	10.3	11.1	23.2	2.08	7.5	1.8	0.32	1.47	0.35	2.02	0.35	0.82	0.13	0.74	0.11
MR-45	6451507	519926.22	239.14	4332	1	< .1	0.8	13.8	2.3	2.2	< 1	81.1	0.2	2.4	2.3	< 5	0.1	473	10.1	10.8	24.3	2.38	9.4	1.4	0.38	1.55	0.29	1.89	0.39	1.17	0.19	1.14	0.21
MR-45	6451507	519929.25	229.61	4333	0.7	< .1	1.4	6.3	1.3	2.1	1	69.6	< .1	2.7	1.4	< 5	0.3	198.2	7.2	10.2	21.8	2.22	7.9	1.4	0.32	1.49	0.22	1.22	0.25	0.66	0.11	0.71	0.14
MR-45	6451507	519932.25	220.08	4334	< .5	< .1	2.6	6.3	0.9	4.1	2	58.1	< .1	2.6	1.6	< 5	< .1	199.7	4.5	8.3	19.6	1.78	7.1	1.3	0.21	0.91	0.15	0.92	0.15	0.41	0.07	0.58	0.13
MR-45	6451507	519935.25	210.54	4335	< .5	< .1	1.5	1.8	0.5	1.3	3	53.8	< .1	1.8	0.5	< 5	0.1	54.1	2.9	9.1	18.2	1.84	6.8	1	0.19	0.82	0.12	0.53	0.08	0.32	< .05	0.26	0.05
MR-45	6451507	519938.19	200.98	4336	< .5	< .1	0.7	1.6	0.8	2.9	< 1	64.9	< .1	2.3	0.7	< 5	< .1	50.2	2.8	10.4	21.7	2.13	7.6	1.2	0.19	0.79	0.09	0.47	0.1	0.25	< .05	0.44	0.05
MR-45	6451507	519941.13	191.42	4337	< .5	0.2	0.5	1.9	< .5	5	< 1	75.1	< .1	2	0.9	< 5	< .1	57.1	2.9	11.8	23.8	2.32	8.3	1.4	0.25	1.06	0.14	0.51	0.08	0.22	0.07	0.32	0.04
MR-45	6451507	519944	181.86	4338	< .5	< .1	0.9	1.6	< .5	4.1	< 1	57.7	< .1	2.3	1	< 5	0.3	46.3	5.3	9.9	18.6	1.88	7.3	0.9	0.21	1.22	0.17	0.87	0.15	0.43	0.07	0.39	0.06
MR-45	6451507	519946.88	172.28	4339	< .5	0.2	0.9	12.4	1.5	3.4	< 1	37.8	< .1	2.3	2.4	5	< .1	459.9	7.2	6.5	12.9	1.41	5.6	1.3	0.22	0.96	0.17	1.01	0.24	0.8	0.11	0.81	0.18
MR-45	6451507	519949.72	162.69	4340	< .5	0.4	< .5	2.5	0.6	4.5	< 1	33	< .1	2.1	0.9	< 5	< .1	76.8	6.4	5.7	11.9	1.13	4.1	0.8	0.16	0.54	0.16	1	0.22	0.53	0.08	0.46	0.08
MR-45	6451506.5	519950.84	158.86	4341	< .5	0.5	5.8	4.2	5	20	2	265.9	0.8	10.1	1.4	8	2.5	134.7	8.5	21.1	44.4	4.51	17	3.7	0.79	3.04	0.32	1.63	0.3	0.9	0.16	0.8	0.14
MR-45	6451506.5	519951.97	155.02	4342	1.7	0.2	3.5	2.3	3.8	13.9	2	126.3	0.9	10.3	1.2	14	0.5	88.5	3.6	14.7	27.9	2.83	10.5	2.2	0.38	1.23	0.13	0.7	0.1	0.36	0.05	0.36	0.05
MR-45	6451506.5	519953.06	151.18	4343	< .5	0.1	3.3	3.7	3.2	8.6	< 1	98.3	0.6	5.3	1	10	0.8	124.4	2.6	9.5	19.2	1.95	6.6	0.8	0.22	0.85	0.12	0.35	0.08	0.28	< .05	0.21	0.04
MR-45	6451506.5	519954.19	147.34	4344	0.5	< .1	5.9	4.1	5.5	17.6	2	300.3	0.9	9.9	1.3	13	0.3	119.8	3.8	23.7	46.9	4.29	15.6	2.3	0.55	2.04	0.2	1.03	0.13	0.31	0.06	0.46	0.05
MR-45	6451506.5	519955.31	143.5	4345	< .5	0.3	3.1	2.2	2.6	6.4	< 1	287.6	0.3	6.5	0.4	5	0.4	77.3	7	16.1	31.7	3.32	12	2.1	0.38	1.81	0.18	1.18	0.2	0.67	0.09	0.71	0.13
MR-45	6451506.5	519956.41	139.66	4347	0.7	< .1	2.1	1.9	2.1	3.3	< 1	143.6	0.3	5.4	0.6	< 5	0.2	64.7	2.1	10.6	19.1	2.09	7	1.4	0.23	0.97	0.12	0.26	< .05	0.23	< .05	0.31	0.03
MR-45	6451506.5	519957.5	135.81	4348	1.7	< .1	1.9	4.1	4.6	1.9	2	191.3	0.7	19.2	1	12	0.7	140.1	3.6	16.2	28.3	2.97	9.4	2.2	0.16	1.34	0.15	0.78	0.1	0.28	0.07	0.49	0.08
MR-45	6451506	519958.59	131.97	4349	< .5	< .1	4	2.2	2.2	5.7	< 1	917.2	0.3	6.7	0.6	8	1	63	5	14.8	29.1	2.97	11.7	2.5	0.31	1.88	0.27	1.04	0.14	0.35	0.05	0.49	0.05
MR-45	6451506	519959.69	128.12	4350	0.6	< .1	8.7	4.2	5.3	12.4	4	683	0.6	13.9	1.4	20	1	171.2	8	27.9	51.7	5.35	17.2	3.2	0.51	2.44	0.39	1.66	0.26	0.81	0.11	0.67	0.13
MR-45	6451506	519960.81	124.28	4351	0.8	< .1	7.4	3.2	4.6	10.2	< 1	1104.5	0.6	10.7	1.3	14	0.7	102.7	6.3	21.3	41.4	4.14	16.4	2.7	0.54	2.13	0.2	0.87	0.18	0.55	0.08	0.82	0.12
MR-45	6451506	519961.91	120.43	4352	< .5	< .1	6.6	3.5	5.2	8.2	< 1	873.4	0.7	14.6	1.6	9	0.2	145.3	4.8	21.8	41.4	4.21	15.1	2.5	0.43	1.72	0.22	0.84	0.19	0.55	0.09	0.6	0.1
MR-45	6451506	519963	116.59	4353	< .5	< .1	7.6	3	3.9	10.9	< 1	920.2	0.6	11	1.1	19	0.4	103.8	9.3	21.8	40.3	4.09	16.6	2.5	0.45	2.23	0.29	1.36	0.28	0.76	0.1	0.88	0.13
MR-45	6451506	519964.09	112.74	4355	2	< .1	33.8	5.2	34	25.4	< 1	198.7	1.9	8.3	2.3	61	2.9	247	58	83.7	108.1	16.36	62.1	11.8	2.57	9.44	1.57	10.04	1.73	4.48	0.68	3.31	0.57
MR-45	6451506	519966.84	103.13	4356	7	0.6	40.7	4.5	13.8	23.2	1	27.2	1.3	4.2	2.5	152	< .1	138.5	10.4	8.2	18.9	2.45	11.1	2.8	0.3	2.56	0.34	1.94	0.32	0.81	0.11	0.74	0.09
MR-45	6451506	519969.59	93.52	4357	4.7	< .1	12.9	4.3	2	124.1	< 1	177.7	0.2	34.5	1.4	13	< .1	106.5	4.7	41.7	66.3	6.55	23	3.4	0.86	2.01	0.18	0.73	0.17	0.24	0.07	0.39	0.08
MR-45	6451506	519972.34	83.9	4358	4.7	0.3	21.8	4.7	7.2	100.7	< 1	242.6	0.3	18.9	1	35	< .1	160.7	8	56	92.6	9.75	34.2	5	1.14	3.49	0.41	1.5	0.32	0.49	0.07	0.4	0.08
MR-45	6451506	519975.06	74.29	4359	7.2	0.2	23.9	4.1	8.6	32.1	< 1	196.5	0.4	16.1	1	85	< .1	150.1	14.9	49.6	87.5	9.76	34.8	6.6	0.99	5.25	0.59	2.8	0.44	1.18	0.18	1.2	0.18
MR-45	6451506	519977.81	64.68	4360	8.5	0.5	25.7	5	8.3	85.2	< 1	445.8	0.5	18.3	0.7	58	< .1	194.7	19.5	66.8	110.2	10.68	37.6	6.3	1.16	4.31	0.62	3.55	0.67	1.48	0.25	1.76	0.25
MR-46	6451508	520045.5	192.9	4362	0.5	< .1	1.4	5.8	0.9	2.6	< 1	64.7	0.1	1.8	1.7	< 5	< .1	203.4	7.3	10.5	19	1.97	7.5	1.4	0.22	1.25	0.21	1.14	0.19	0.69	0.11	0.67	0.12
MR-46	6451508	520045.5	182.9	4363	< .5	< .1	1.4	2.7	0.6	1.8	< 1	84.8	< .1	2.3	0.8	6	< .1	91.8	3.7	12.2	23.4	2.37	8.1	1.3	0.24	1.09	0.16	0.8	0.11	0.26	0.05	0.38	0.03
MR-46	6451508	520045.5	172.9	4364	< .5	< .1	1.5	5.2	1.7	2.7	< 1	71.4	0.2	2.8	1.1	7	< .1	184.3	8.3	10.9	22.5	2.2	8	1.7	0.24	1.44	0.23	1.53	0.29	0.83	0.13	0.66	0.14
MR-46	6451508	520045.5	162.9	4365	< .5	< .1	1.6	1.7	0.5	1.9	< 1	80	0.1	1.8	0.9	5	0.5	54.2	6.7	9.8	24	2.26	9.4	1.4	0.24	1.25	0.2	1.05	0.21	0.5	0.09	0.58	0.07
MR-46	6451508	520045.5	152.9	4366	0.5	0.2	2.7	15.2	4	3.8	< 1	68.1	0.5	11.2	1.3	11	0.9	557	6.6	9.1	19.2	2	8.6	1.6	0.24	1.05	0.12	0.73	0.21	0.57	0.12	0.81	0.17
MR-46	6451508	520045.5	142.9	4367	0.9	< .1	2.9	3.7	1.5	2.2	< 1	147.6	< .1	4.2	0.8	6	1.1	119.4	5.8	28	62.3	6.07	25.7	4.5	0.55	2.42	0.24	1.31	0.23	0.53	0.09	0.5	0.11
MR-46	6451508	520045.5	138.9	4368	2.3	0.1	16.9	105.8	42.4	11	6	1118.5	4	79.7	8.1	82	3.5	3785	54.8	253	559.6	55.03	218.6	37.4	4.6	20.13	2.43	12.19	2.1	6.01	0.96	7.45	1.28
MR-46	6451508	520045.5	134.9	4370	0.7	0.1	5.5	4	3.6	10.8	3	184.7	0.5	9.7	0.9	13	0.9	140.5	5	18.9	35.4	3.8	15.8	1.9	0.45	1.47	0.15	0.78	0.15	0.43	0.09	0.46	0.06
MR-46	6451508	520045.5	130.9	4371	0.7	< .1	6.1	3.9	3.7	11.3	4	497.6	0.4	8.8	0.6	8	0.7	129.7	9.8	20	37.4	4.09	15.4	3	0.45	2.15	0.28	1.64	0.29	0.73	0.09	0.79	0.11
MR-46	6451508	520045.5	126.9	4372	< .5	0.1	7.7	3.5	3.1	9	4	1415.1	0.4	9.3	1.1	13	4.5	109.6	8.8	26.6	51.2	5.59	22.3	3.7	0.6	2.82	0.36	1.73	0.23	0.67	0.14	0.64	0.08
MR-46	6451508	520045.5	122.9	4373	0.6	< .1	6.6	3.9	5	10.6	9	1417.1	0.8	13	1	11	0.6	121.4	8.4	32.9	64.9	6.55	27.7	6	0.94	3.55	0.37	1.63	0.28	0.81	0.14	0.8	0.15
MR-46	6451508	520045.5	118.9	4374	2	< .1	4.2	3	3.2	6.8	7	453.3	0.3	8.4	0.7	< 5	0.5	105.6	5.5	16.9	32.8	3.54	13.1	1.9	0.42	1.84	0.18	0.79	0.18	0.44	0.12	0.7	0.1
MR-46	6451508	520045.5	114.9	4375	< .5	0.1	7.4	2.1	2.4	13	6	704.9	0.3	6.1	0.4	15	1.3	69.3	4.5	15.6	30.6	3.08	12.5	2.6	0.37	1.77	0.19	0.92	0.16	0.44	0.08	0.57	0.08
MR-46	6451508	520045.5	110.9	4377	< .5	< .1	16.3	6.9	1.3	23.8	< 1	125.6	< .1	43.7	1.5	25	1.6	206.2	3.7	25.5	45	4.71	16.2	2.9	0.77	1.61	0.17	0.62	0.11	0.26	0.08	0.57	0.09
MR-46	6451508	520045.5	100.9	4378	0.6	0.6	16.7	3.5	0.6	47	< 1	70.7	< .1	4.8	0.7	7	< .1	89	11.2	28.1	51.5	6	24.6	5.2	0.99	2.74	0.36	1.89	0.34	0.94	0.16	1.23	0.2
MR-46	6451508	520045.5	90.9	4379	2	0.7	15.5	3.4	0.6	130.6	< 1	106.3	< .1	9.6	0.5	< 5	< .1	80.1	6.1	19.9	33.9	3.38	12.5	2	1.08	1.48	0.1	0.87	0.21	0.7	0.12	1.23	0.25
MR-46	6451508	520045.5	80.9	4380	< .5	0.4	13.1	4	< .5	178.5	1	141.5	< .1	7	1.1	< 5	< .1	107.7	11.8	16.8	25	2.45	8.2	1.6	1.08	1.53	0.21	1.35	0.34	1.12	0.23	1.85	0.34
MR-46	6451508	520045.5	70.9	4381	3.3	0.4	13.6	2.9	1.9	211	< 1	168.2	0.1	18.6	1.5	8	< .1	83.2	4.3	23.9	47.2	5.01	18.9	3.9	1.15	2.38	0.25	0.99	0.15	0.34	0.05	0.44	0.09
MR-46	6451508	520045.5	60.9	4382	0.5	0.6	12.1	3.6	1	179.7	< 1	135.8	< .1	11	0.9	5	< .1	72	19.7	12.6	22.2	2.02	6.5	1.7	1.14	2.49	0.4	2.36	0.61	2.18	0.42	3.49	0.56
MR-46	6451508	520045.5	50.9	4383	0.5	0.5	12.7	4.2	0.5	176.7	< 1	130.1	< .1	9.9	0.8	< 5	< .1	95.5	8.4	15.1	26.3	2.43	8.4	1.5	0.91	1.16	0.18	1.17	0.24	0.96	0.18	1.67	0.28
MR-34	6451510	520012.28	190.25	4385	0.7	< .1	1.4	2.9	1.1	1.9	1	83.8	< .1	2.9	1.2	6	0.1	104.7	7	13	24.1	2.72	10.2	1.7	0.23	0.99	0.18	1.2	0.21	0.5	0.1	0.52	0.08
MR-34	6451510	520009.03	180.79	4386	0.9	0.2	1.3	1.7	< .5	2.4	< 1	50.3	< .1	1.7	0.9	< 5	< .1	49.9	3.6	8.2	16.1	1.75	6.4	1.1	0.15	0.8	0.1	0.69	0.11	0.3	< .05	0.25	0.04

Hole ID	Northing	Easting	Elevation	Sample number	Co ppm	Cs ppm	Ga ppm	Hf ppm	Nb ppm	Rb ppm	Sn ppm	Sr ppm	Ta ppm	Th ppm	U ppm	V ppm	W ppm	Zr ppm	Y ppm	La ppm	Ce ppm	Pr ppm	Nd ppm	Sm ppm	Eu ppm	Gd ppm	Tb ppm	Dy ppm	Ho ppm	Er ppm	Tm ppm	Yb ppm	Lu ppm
MR-34	6451510	520005.81	171.33	4387	1.1	0.3	0.6	1.6	0.6	2.2	2	98.6	0.2	2	1.1	< 5	1.4	61.2	9.6	11.9	22.5	2.5	9.7	1.5	0.23	1.46	0.23	1.63	0.33	0.82	0.13	0.71	0.09
MR-34	6451510	520002.59	161.87	4388	1	0.5	1.6	4.2	1.3	4.4	2	196.6	0.2	2.6	1.3	< 5	1.3	147.7	17.1	13.4	32.7	3.26	12.8	2.7	0.38	2.23	0.4	2.45	0.56	1.3	0.17	1.07	0.15
MR-34	6451510	519999.38	152.4	4389	0.7	0.3	< .5	1.6	0.5	1	4	43.6	0.1	2	0.9	< 5	1.2	58.3	3.8	6.8	15.2	1.47	6	1	0.18	0.78	0.12	0.56	0.12	0.32	< .05	0.23	0.07
MR-34	6451510	519996.19	142.92	4390	< .5	< .1	1.9	1.6	0.8	2.8	3	46.1	0.2	1.8	1.1	< 5	0.3	74.7	4.9	7.3	16	1.81	5.7	1.1	0.12	0.82	0.15	0.81	0.16	0.36	< .05	0.44	0.06
MR-34	6451510	519994.91	139.13	4391	1.1	0.1	6.5	5	4.9	16.6	5	197.1	0.7	11.5	1.3	17	0.8	173.7	12.6	19.3	35.3	3.88	15.8	3	0.6	2.42	0.38	2.01	0.44	1.07	0.16	1.04	0.13
MR-34	6451510	519993.66	135.34	4393	< .5	0.1	10	5.3	6.5	9.7	3	223.9	1	20.7	1.3	20	1	165.5	15.6	35.2	66.3	6.99	24.4	5.1	0.79	2.95	0.4	2.23	0.45	1.34	0.22	1.49	0.18
MR-34	6451510	519992.38	131.54	4394	0.5	< .1	2.2	3.4	4	9.1	2	202.6	0.7	10.6	1.8	< 5	1.1	106.2	7	20.7	40	4.1	15.1	3	0.36	1.87	0.19	0.99	0.21	0.69	0.09	0.64	0.08
MR-34	6451510	519991.13	127.75	4395	1.3	< .1	4.7	7.5	9.8	7.1	< 1	154.8	2.3	76.1	8.4	19	1.6	237.2	11.8	28.4	60.9	6.73	27.2	5.7	0.78	3.4	0.35	1.84	0.33	0.83	0.15	0.87	0.11
MR-34	6451510	519989.84	123.95	4396	1.3	0.1	4.7	5.1	5.4	12.9	< 1	18.7	0.6	12.9	8.6	19	1.7	155.9	4.1	26.6	53.2	5.59	22.8	4.2	0.52	1.79	0.16	0.53	0.07	0.32	0.05	0.34	0.07
MR-34	6451510	519988.91	121.11	4397	6.5	< .1	5.3	5	6.3	5	< 1	27.6	0.6	14	175	24	2.1	179	16.4	28.9	58.3	6.88	26.1	5.2	0.77	3.25	0.56	3.32	0.53	1.71	0.23	1.4	0.15
MR-34	6451510	519987.31	116.36	4398	9	0.1	11.9	2.8	4.3	16.1	< 1	31.3	0.8	10.8	287.4	54	2.2	94.3	8.4	38	80.6	8.96	37.7	7	1.19	3.39	0.23	1.16	0.21	0.6	0.09	0.69	0.08
MR-34	6451510	519986.06	112.57	4400	2.2	0.7	34.4	2.2	2.7	85.8	1	77.7	0.2	5.8	2	54	0.1	67	13.2	20.3	32.9	3.74	14	2.8	0.56	1.9	0.3	2	0.43	1.47	0.25	1.88	0.29
MR-34	6451510	519982.94	103.07	4401	9.5	1.5	17.5	2.4	4	36.5	< 1	31.6	0.2	11.8	4.1	47	1.3	86.4	11	49.8	97	10.62	37.5	5.3	1.09	3.36	0.49	2.52	0.37	0.91	0.13	0.92	0.13
MR-34	6451510	519979.81	93.57	4402	1.4	0.4	15.8	1.9	2.3	134.8	< 1	225.3	0.1	17.9	0.7	7	0.1	66.3	3.9	53.5	100.2	10.42	33.4	6	1.47	3.52	0.4	1.31	0.11	0.22	< .05	0.18	0.04
MR-34	6451510	519976.72	84.07	4403	0.7	0.2	11.5	2.2	2	150.8	< 1	97.6	< .1	24.4	0.4	6	< .1	72.7	2.3	20.1	31.2	2.85	9	1	0.62	0.69	0.08	0.47	0.06	0.21	< .05	0.25	0.06
MR-43	6451512	520030.16	191.69	4405	< .5	< .1	2.9	2	0.8	0.8	< 1	70.8	0.1	2	4.3	< 5	1.1	63	4	10.9	20.8	2.2	7.9	1.5	0.15	1	0.12	0.68	0.14	0.41	< .05	0.35	0.05
MR-43	6451512.5	520027.69	182.01	4406	1	< .1	3.9	3.8	1.1	2	< 1	75.4	< .1	4.3	2.4	< 5	0.1	108.9	5.3	11.9	22.5	2.49	8.7	1.4	0.23	0.86	0.15	0.97	0.17	0.53	0.11	0.42	0.08
MR-43	6451512.5	520025.22	172.33	4407	< .5	< .1	3.5	2.9	1.5	1.4	< 1	71.9	< .1	2.8	1.2	< 5	0.2	94.5	5.8	10.7	23.3	2.26	9.1	2	0.2	1.08	0.15	1.15	0.17	0.53	0.08	0.52	0.09
MR-43	6451513	520022.72	162.64	4408	0.6	< .1	1.2	6.8	0.8	< .5	3	51	0.1	3.9	1.6	5	0.6	232.7	6.7	7.4	16	1.61	6.2	1.4	0.17	0.81	0.13	0.98	0.21	0.54	0.07	0.61	0.09
MR-43	6451513.5	520020.25	152.96	4409	< .5	< .1	6.3	6.2	2.6	9	3	192.3	0.3	7	2.6	41	1	235.2	61.3	21.6	45.4	4.42	16.2	3	0.61	4.21	1.28	9.03	1.79	4.76	0.61	3.37	0.44
MR-43	6451514	520017.78	143.28	4410	0.5	< .1	3	3.7	1.1	2.1	1	49.2	< .1	2.5	1.4	13	0.1	94	16.1	8.2	16.6	1.62	6.8	1.1	0.23	1.45	0.35	2.26	0.46	1.22	0.17	0.97	0.15
MR-43	6451514	520016.78	139.41	4411	1.1	0.1	26.2	9.5	12.4	6.7	1	404.3	1.3	22.2	5.9	17	1.6	343.5	23.3	57.6	109	12.53	43.9	8.1	1.56	5.93	0.75	3.8	0.81	2.22	0.36	2.18	0.35
MR-43	6451514	520015.81	135.54	4412	0.7	0.2	11.3	4.2	6.3	11.8	< 1	304.3	0.8	14.7	2.3	17	0.9	148.3	15.9	35.6	71.5	7.86	25.7	4.6	0.87	3.02	0.47	2.62	0.53	1.37	0.19	1.32	0.16
MR-43	6451514.5	520014.81	131.66	4413	1.2	< .1	4.1	4.8	7.1	5.4	< 1	265.9	1.1	13	1.4	13	0.9	153.8	4.7	22.7	41.6	4.43	15.2	2.8	0.44	1.65	0.21	0.89	0.15	0.39	0.07	0.42	0.1
MR-43	6451514.5	520013.84	127.79	4414	0.7	< .1	4.2	3.1	3.1	6.9	< 1	638.1	0.4	9.8	1.4	14	0.5	102.4	2.8	18.3	34.8	3.79	14	2.6	0.37	2.25	0.27	0.75	0.09	0.26	< .05	0.39	0.06
MR-43	6451514.5	520012.84	123.92	4416	< .5	< .1	5.2	6.6	9.8	11.2	< 1	734.9	1.3	30.6	2.7	20	1.3	253.5	156.5	39.2	73.3	8.07	30.9	5.9	1.12	8.77	2.81	21.85	4.33	11.18	1.32	6.67	0.88
MR-43	6451515	520011.84	120.05	4417	< .5	< .1	7.5	1.7	2.7	19.4	1	431.8	0.4	5.7	2.4	22	0.5	76.4	9.2	18	37.3	4.2	15.3	3.1	0.5	2.2	0.29	1.43	0.22	0.71	0.11	0.65	0.11
MR-43	6451515	520010.88	116.17	4418	3.4	0.1	6.8	3.1	4.3	14.7	< 1	436.5	0.6	10.7	4.6	12	0.9	108.9	13.1	26	51.6	5.8	21.7	4.7	0.79	3.4	0.46	2.04	0.4	0.98	0.14	0.81	0.15
MR-43	6451515	520009.88	112.3	4419	4.1	< .1	9.3	3.6	8.4	14.3	1	380.7	1.3	24.5	2.5	24	1.7	138.2	10.6	38.9	76.9	8.05	27.5	5	0.94	3.47	0.41	1.59	0.28	0.9	0.13	0.8	0.16
MR-43	6451515.5	520008.91	108.43	4421	2.5	0.2	39.2	5.2	11.2	85.5	< 1	310.6	0.5	42.6	1.7	110	3.9	171.7	6.3	125.2	220.1	25.78	81.6	9.9	2.25	4.88	0.55	2.01	0.18	0.59	0.08	0.69	0.11
MR-43	6451516	520006.44	98.75	4422	1.7	0.3	17.5	3.6	5.8	8.8	< 1	25.8	0.5	5.8	0.8	42	0.8	127.5	8.9	14.2	31.9	3.36	12.7	2	0.56	1.61	0.25	1.64	0.3	0.77	0.11	0.69	0.11
MR-43	6451516.5	520003.97	89.06	4423	25.5	0.3	21.4	4.5	6.8	62.3	< 1	88.8	0.2	6.6	0.2	143	< .1	150.4	19.6	35.5	66.4	7.16	25.8	4.6	1.13	3.71	0.62	3.49	0.71	1.98	0.3	1.91	0.29
MR-43	6451516.5	520001.5	79.38	4424	27.8	0.2	21.1	2.1	5.8	12.3	< 1	237.2	0.5	0.4	< .1	204	0.1	77.4	24.3	16.1	34	4.01	16.8	3.6	1.25	3.64	0.56	4.26	0.83	2.2	0.33	2.29	0.4
MR-43	6451517	519999.03	69.7	4425	15.7	0.9	19.5	2.5	6	58.6	< 1	80.7	0.5	1.3	0.3	177	0.2	81.1	14.3	17.6	33	3.52	13.3	2.5	0.97	2.42	0.38	2.41	0.48	1.37	0.18	1.47	0.23
MR-40	6451511.5	520052.19	262.31	4427	< .5	< .1	0.6	0.9	0.8	1	2	114.2	0.3	3.4	0.8	< 5	1.1	32.3	5.1	12.6	27.9	2.75	9.7	1.9	0.3	1.53	0.22	1.04	0.15	0.46	0.05	0.41	0.05
MR-40	6451512	520050.41	252.48	4428	< .5	< .1	1.1	2.2	1	2	< 1	196.8	< .1	4.1	0.7	12	0.4	82.3	8.7	12.2	27.8	2.76	10.7	2.7	0.38	2.11	0.35	1.52	0.25	0.74	0.09	0.59	0.08
MR-40	6451512.5	520048.63	242.64	4429	0.5	< .1	1.3	7.4	2	4.5	< 1	83.3	0.3	3.9	1.3	11	1	257	5.4	12.7	26.2	2.78	10	2	0.3	0.96	0.16	0.83	0.17	0.48	0.09	0.63	0.12
MR-40	6451512.5	520046.88	232.8	4430	< .5	0.3	0.5	6	1.1	3.4	1	66.3	0.1	2.5	1	< 5	0.7	202.5	4.7	9.3	21.9	2.13	7.7	1.2	0.21	0.96	0.15	0.76	0.15	0.43	0.08	0.46	0.09
MR-40	6451513	520045.13	222.96	4431	0.5	0.1	< .5	4.6	0.7	1.8	< 1	57.6	< .1	2	0.6	6	0.3	165.5	4.5	8.6	17.9	1.81	7.6	1.4	0.21	0.91	0.14	0.68	0.16	0.41	0.08	0.43	0.07
MR-40	6451513.5	520043.41	213.12	4432	< .5	0.2	0.8	6	1	3	2	72	0.1	2.8	1.7	8	0.4	214.3	56.5	10.7	22.2	2.29	7.3	1.6	0.38	3.17	1.13	8.06	1.66	4.46	0.6	3.25	0.45
MR-40	6451514	520041.69	203.28	4433	< .5	0.1	1	1.3	< .5	2.6	1	76.1	< .1	1	2.1	14	0.5	41.3	5	10.6	21.7	2.15	8	1.4	0.25	1.35	0.17	0.98	0.16	0.41	0.06	0.36	0.06
MR-40	6451514	520040	193.43	4434	< .5	< .1	0.6	1.2	< .5	1.3	< 1	68.1	< .1	1.8	1.2	< 5	0.7	39.2	3.4	10	19.7	2.14	6.8	1.2	0.22	0.7	0.13	0.65	0.11	0.26	0.05	0.29	0.04
MR-40	6451514.5	520038.31	183.59	4435	< .5	0.1	1.4	1.5	0.8	1.9	1	57.6	< .1	2.3	1	< 5	0.4	53.2	4.2	9.7	17.6	1.91	7	1.1	0.15	0.82	0.15	0.76	0.13	0.43	0.08	0.33	0.05
MR-40	6451515	520036.63	173.74	4436	0.6	< .1	< .5	2.7	0.7	1.3	< 1	53.6	< .1	2.1	1	< 5	< .1	88.7	5.8	8.6	16.6	1.77	5.9	0.9	0.16	0.98	0.10	0.97	0.16	0.51	0.07	0.38	0.04
MR-40	6451515.5	520034.97	163.89	4437	0.6	< .1	< .5	5.4	1.3	< .5	< 1	75.9	0.2	2.3	0.7	< 5	0.2	178.1	12.6	8.7	19.3	1.93	7.1	1.4	0.21	1.24	0.26	1.97	0.39	0.96	0.17	0.83	0.13
MR-40	6451516	520033.31	154.04	4439	0.7	< .1	1.9	3.6	1.2	1.3	< 1	125.5	0.1	2.8	0.9	< 5	0.3	128.9	17.3	12.4	26.6	2.8	10.1	1.7	0.32	1.57	0.37	2.5	0.51	1.42	0.18	1.16	0.16
MR-40	6451516.5	520031.66	144.2	4440	0.6	< .1	2.4	5.4	1.2	2.2	< 1	61.7	0.1	3.4	1.3	< 5	0.3	179.4	5.7	12.4	27	2.93	10.1	1.4	0.26	0.87	0.2	1.05	0.18	0.52	0.08	0.73	0.1
MR-40	6451517	520031	140.26	4441	1.8	< .1	8	44	33.8	5.4	11	403.3	4.8	168.9	5.3	93	2.7	1591.4	18.3	88.5	175.4	16.77	51.8	7.1	1.18	4.97	0.74	3.45	0.57	1.64	0.28	2.29	0.41
MR-40	6451517	520030.31	136.32	4442	0.8	0.3	12.2	7.4	10.8	8.5	1	501.6	1.3	18.3	1.2	6	0.7	260.3	8.9	42.5	81.9	9	34.2	5.9	1.29	4.13	0.44	1.66	0.25	0.79	0.13	0.96	0.18
MR-40	6451517.5	520029.34	130.41	4443	0.5	< .1	4.8	3.3	3.2	5.5	1	984.7	0.5	8.2	3.4	8	0.8	85.9	4.3	20.3	43	5.44	23.2	5.4	0.8	3.46	0.38	1.25	0.14	0.47	0.05	0.48	0.07
MR-40	6451517.5	520028.69	126.47	4444	0.8	< .1	7.7	4.3	5.8	11.1	< 1	2223.7	0.8	11.9	1.8	13	0.2	149	15.4	28.9	57.4	6.63	25.3	4.8	0.78	4.43	0.62	2.69	0.33	1.18	0.2	0.95	0.18
MR-40	6451518	520028.03	122.53	4445	1	< .1	5.9	2	3.2	9.3	< 1	484.4	0.4	8.5	0.4	8	0.3	71.5	18.4	20.8	42.1	4.64	18.6	3	0.64	2.69	0.41	2.84	0.52	1.31	0.19	1.16	0.18
MR-40	6451518	520027.38	118.59	4446	1.8	< .1	6.5	2.4	2.8	8.2	< 1	393	0.4	7.3	2.3	26	0.5	78.4	199.1	15.8	32.1	3.64	13.7	2.4	0.83	7.81	3.54	29.22	5.4	13.25	1.51	7.42	0.95
MR-40	6451518.5	520026.72	114.65	4448	6.1	0.7	43	9.6	37.3	98.1	< 1	120.9	1.8	58.7	4	106	4	320.4	14.2	36.9	77.7	8.53	30.1	6	1.05	3.38	0.46	2.59	0.5	1.35	0.19	1.53	0.24
MR-40	6451519	520025.09	104.8	4449	8.3	0.7	28.7	6.8	15.7	150.1	< 1	32.3	0.8	20.4	12.7	143	2.6	222.8	9	18.5	37.1	4.21	15.3	2.9	0.88	2.21	0.33	1.66	0.32	0.91	0.15	1.08	0.14
MR-40	6451519.5	520023.47	94.96	4450	12.7	0.6	22.9	4.9	10.1	102.1	< 1	335.6	0.5	17.2	1.8	115	0.6	153.8	29.8	365.5	675.4	79.3	296.2	45.4	6.03	13.91	1.52	6.48	0.83	3.05	0.41	3.13	0.43
MR-40	6451520	520021.84	85.11	4451	20.1	0.8	26.4	6.6	13	172.8	< 1	58.8	0.7	24.4	2.5	169	0.6	213.2	24.2	54	102.4	11.56	40.6	6.7	1.33	4.13	0.74	4.15	0.9	2.56	0.38	2.65	0.41
MR-40	6451520.5	520020.22	75.26	4452	62.9	0.9	30.6	6	18.7	200.6	< 1	57.6	1.1	34.8	2.6	192	0.6	195.5	10.1	70.4	127.6	13.98	48.3	6.8	1.05	2.91	0.44	2.28	0.39	0.97	0.16	1.2	0.17
MR-40	6451521.5	520018.59	65.41	4453	46.6	1.5	29	7.5	22	166.1	< 1	107.7	1.2	33.7	2.7	159	3	238.4	13.2	93.7	173.5	19.4	69.2	10.4	2.46	6.09	0.8	3.73	0.57	1.4	0.21	1.5	0.26
MR-40	6451522	520016.97	55.56	4454	14.2	0.5	14.9	3.9	10	48.2	< 1	15.1	0.5	18.7	1.4	81	0.2	137.7	20.3	37.6	76.7	8.62	32.1	5.1	1.09	3.85	0.61	3.38	0.63	2	0.31	2.23	0.34
MR-60	6451576	519745.41	219.8	4456 dup	0.7	< .1	0.8	14.6	1.4	2	< 1	101.9	0.2	2.9	1.9	< 5	0.2	526.9	267.4	8.6	19.9	2.23	9.1	2.1	0.53	9.27	4.4	38.31	8.02	21.91	2.9	13.87	2.04
MR-60	6451573	519791.09	144.67	4457 dup	0.5	< .1	3.2	2.4	1.9	2.2	< 1	158.9	0.2	5.7	0.5	12	0.8	71.6	6.7	9.5	18.2	2.07	7.6	1.5	0.24	0.87	0.17	1.02	0.19	0.42	0.08	0.43	0.09
MR-35	6453344	519544.94	132.29	4458 dup	< .5	< .1	2.9	4.2	5.4	6.3	< 1	133.7	0.7	9.2	1.3	9	0.5	146.8	5.7	10.9	19.6	2.2	8.3	2.1	0.39	1.28	0.22	1.1	0.19	0.48	0.05	0.42	0.09

Hole ID	Northing	Easting	Elevation	Sample number	Co ppm	Cs ppm	Ga ppm	Hf ppm	Nb ppm	Rb ppm	Sn ppm	Sr ppm	Ta ppm	Th ppm	U ppm	V ppm	W ppm	Zr ppm	Y ppm	La ppm	Ce ppm	Pr ppm	Nd ppm	Sm ppm	Eu ppm	Gd ppm	Tb ppm	Dy ppm	Ho ppm	Er ppm	Tm ppm	Yb ppm	Lu ppm
MR-39	6451514.5	520015.16	170.74	4459 dup	< .5	< .1	2.5	3.6	1.1	2.3	< 1	103.5	< .1	2.6	1.1	5	0.4	121.5	11.5	11.6	24.3	2.37	8.6	1.3	0.26	1.48	0.31	1.46	0.36	0.89	0.14	0.86	0.11
MR-29	6451518.5	519996.36	236.86	4460 dup	< .5	< .1	0.9	4.1	1.4	2.7	< 1	74.2	< .1	3	1.7	< 5	< .1	145.4	4.5	11.4	23	2.39	8.3	1.3	0.25	1.09	0.14	0.74	0.13	0.42	0.09	0.46	0.08
MR-29	6451520	519933.41	130.04	4461 dup	< .5	< .1	4.9	2.4	2.9	5.3	< 1	482.8	0.4	6.9	0.8	11	0.8	91.1	3.3	13.1	24.9	2.67	9.5	1.4	0.35	0.98	0.13	0.47	0.11	0.36	< .05	0.46	0.07
MR-28	6448823.5	519790.28	155.31	4462 dup	< .5	< .1	3.9	3.4	4.7	10.8	1	166.2	0.7	8.2	1	10	0.1	125.3	4.8	12.1	23.8	2.57	8.9	1.9	0.34	1.05	0.13	0.66	0.13	0.39	0.05	0.46	0.08
MR-11	6448983	514692.28	172.56	4463 dup	< .5	< .1	5.5	8.7	8.7	10.7	1	257.8	0.8	37.6	2.5	22	0.8	304.3	8.6	41.2	81.4	8.78	32	5	0.58	3.17	0.33	1.34	0.22	0.58	0.1	0.71	0.11
MR-45	6451506	519959.69	128.12	4464 dup	< .5	< .1	8.6	3.7	4.9	13.8	1	673.7	0.7	11.6	1.6	16	1.4	133.9	8.6	25.9	51.8	5.26	19.8	2.6	0.49	2.13	0.25	1.47	0.24	0.71	0.1	0.73	0.11
MR-46	6451508	520045.5	118.9	4465 dup	1	< .1	5.4	2.5	3.3	7.9	< 1	436.5	0.4	6.7	0.8	6	0.8	91.2	5.9	14.9	29.9	3.1	12	1.7	0.4	1.78	0.17	0.76	0.16	0.55	0.09	0.49	0.08
MR-34	6451510	519991.13	127.75	4466 dup	1.8	< .1	3.7	6.4	9	9.2	1	155.3	1.6	58.3	7.9	20	0.9	226.4	17.2	25.9	53.3	5.73	23.1	3.9	0.64	3.3	0.44	2.33	0.48	1.35	0.2	0.97	0.18
MR-43	6451515	520009.86	112.3	4467 dup	0.7	0.1	9.4	3	7.2	13.2	< 1	341.7	1.2	24.9	2.1	21	1.2	119.4	8.3	37.4	71.7	7.49	29.3	4.8	0.98	3.36	0.29	1	0.23	0.59	0.09	0.75	0.12
MR-40	6451517.5	520029.34	130.41	4468 dup	0.5	< .1	6.6	3.1	5	10.2	< 1	1803.7	0.7	12.4	2.4	13	0.5	128.9	11	27.4	54.6	6.34	27.3	5.3	0.87	4.29	0.5	2.06	0.36	0.7	0.15	0.72	0.1
MR-60	6451574	519784.63	154.74	RE 4069	0.6	0.3	5	2.4	2.5	3.9	< 1	107.5	0.3	5.7	0.9	9	0.4	64.6	2.9	9.8	17.1	2.02	6.7	1.2	0.25	0.92	0.08	0.3	0.11	0.35	< .05	0.34	0.05
MR-39	6451512.5	520040.84	246.47	RE 4220	0.5	0.4	0.5	1.3	0.6	3.9	< 1	60.5	< .1	2.2	0.4	< 5	0.8	48.4	2.3	10	16.5	2.08	6.8	1.4	0.18	1.09	0.13	0.42	0.1	0.26	< .05	0.26	0.05
MR-29	6451519	519976.16	202.35	RE 4268	0.5	< .1	0.6	1.5	< .5	< .5	< 1	96.7	< .1	1.6	1.6	7	0.4	51.2	3.9	14	27.3	2.64	8.6	1.8	0.3	1.35	0.16	0.81	0.12	0.3	0.05	0.33	0.02
MR-29	6451520.5	519913.97	97.41	RE 4290	21.6	1.7	17.4	2.8	6.6	170.1	1	87	0.6	3.7	1	73	< .1	91.4	15.9	13.4	23.6	2.5	10.5	2.5	0.43	3.12	0.44	2.56	0.51	1.41	0.29	1.41	0.23
MR-28	6448823.5	519781.16	137.53	RE 4312	< .5	0.2	0.7	1.5	< .5	3.5	1	66.8	0.1	2.4	0.5	< 5	0.2	46.4	2.8	14.5	26.7	2.63	9.7	1.4	0.23	0.76	0.13	0.51	0.08	0.24	< .05	0.28	0.06
MR-45	6451506.5	519955.31	143.5	RE 4345	0.7	< .1	3.3	2.3	2.5	5.3	< 1	304.8	0.4	5.8	1	5	0.9	84.2	7.1	17.3	33.4	3.7	13.8	2.5	0.43	1.65	0.2	1.05	0.22	0.65	0.11	0.69	0.12
MR-34	6451510	519996.19	142.92	RE 4390	< .5	< .1	2.7	2.5	0.8	3.1	2	46.2	0.1	1.7	1.3	< 5	0.7	74.4	4.4	7.9	15.7	1.66	6.2	1.3	0.22	0.92	0.15	0.76	0.15	0.43	0.05	0.49	0.07
MR-40	6451512.5	520046.88	232.8	RE 4430	< .5	0.2	0.9	6.7	1.2	2.6	1	63.9	0.1	2.5	0.8	< 5	0.4	212.1	4.8	9.5	21.3	1.94	7.7	1.2	0.25	1.09	0.14	0.76	0.15	0.45	0.08	0.5	0.07
MR-40	6451519	520025.09	104.8	RE 4449	8.6	0.6	26.4	7.3	15.4	152.1	< 1	30.4	0.8	20	12.9	141	2.7	227.2	8.3	17.8	37.5	4.15	15.2	2.7	0.93	2.07	0.34	1.86	0.27	0.87	0.15	1.13	0.16
MR-46	6451508	520045.5	118.9	RE 4465	1.4	0.2	6.4	3	3.2	8.1	< 1	425	0.4	7.8	0.6	5	0.3	92.4	5.8	15.9	29.9	3.15	12	1.7	0.38	1.44	0.21	0.96	0.17	0.5	0.1	0.6	0.1
				4051B PULP	2.2	1.2	38.2	12	13.7	52.8	7	1217.4	0.9	1.6	0.7	6	0.2	545.7	133.3	62.2	126.4	15.53	58.8	12.9	1.99	16.25	2.77	19.67	4.63	14.3	2.44	15.78	2.38
				4094B PULP	3	1.9	40	11.3	14.3	59.1	6	1312	0.9	2.3	1.1	6	0.4	560.8	139.7	65.6	130.8	15.91	65.3	13.2	2.28	14.07	2.8	19.77	4.89	14.89	2.4	16.41	2.18
				4108B PULP	2.7	1.5	38.4	11	13.8	55.1	8	1227.4	0.9	1	0.8	6	< .1	521.9	134.3	62.6	120.3	14.89	60.4	13.2	2.18	15.57	2.92	20.79	4.65	14.66	2.56	15.49	2.14
				4200B PULP	2.9	1.7	37.9	11.8	12.4	53.6	6	1201.6	0.8	1.6	1	< 5	0.3	495.7	132.4	61.2	124.3	15.33	63.3	13.5	2.03	13.84	2.73	18.77	4.34	13.71	2.3	14.77	2.19
				4245B PULP	2.7	1.5	39.6	11	13.7	57	7	1253.3	1	1.2	0.9	6	< .1	549.7	137.2	61.7	127.5	15.5	60.2	14.8	2.08	14.65	2.77	18.94	4.58	15.59	2.37	16.44	2.32
				4259B PULP	2.3	1.6	36	10.4	14	54.6	7	1207.5	0.9	1.1	1.3	< 5	< .1	529.4	135.7	62.1	119.2	14.67	56.5	14.7	2.12	14.81	2.9	19.71	4.76	15.74	2.48	15.45	2.29
				4286 PULP	2.7	1.6	38.3	11.2	14.3	51.9	5	1219.9	0.9	1.3	1.1	8	< .1	541	138.5	61.7	129.3	15.71	61.7	13.6	1.96	14.72	2.84	19.63	4.56	15.68	2.54	16.83	2.17
				4294 PULP	2.6	1.3	39.8	11.2	13.9	55.8	6	1257.9	0.8	1.8	1.1	< 5	< .1	539.1	139.1	65.1	123.5	15.27	60.5	14.8	2.13	16.24	2.93	21.27	4.93	15.77	2.52	16.35	2.34
				4325 PULP	3.1	1.7	38.4	10.4	13.9	53.4	5	1271.3	0.8	1.4	1.1	< 5	0.1	525	134.7	64.5	132.2	15.78	63.1	13.3	2.02	14.19	2.82	19.98	4.79	15.92	2.33	16.55	2.24
				4354 PULP	2.7	1.6	40.4	12	14.3	56.2	6	1324	1	1.2	0.9	6	< .1	591.3	137	67	138.8	15.65	60.9	15.3	2.19	14.82	2.8	20.71	4.72	15.94	2.69	17.3	2.46
				4361 PULP	2.2	1.6	39.2	11.2	13.6	53.4	6	1224.9	0.7	1.1	0.9	< 5	< .1	539.7	134.4	62.4	121.9	15.06	59.2	13.2	2.16	15.66	2.79	20.75	4.9	15.13	2.51	16.59	2.37
				4376 PULP	2.6	1.6	37	12	13.1	55.5	6	1264.1	1	0.9	0.7	5	0.2	561.3	136.3	62.2	129	15.6	64.4	15.6	1.87	14.75	2.82	19.31	4.61	16.39	2.45	16.52	2.2
				4384 PULP	2.6	1.3	39.1	10.9	13.8	53	6	1241.3	0.8	1.4	0.9	6	< .1	533.6	136.9	62.8	131.1	15.83	61.1	13.8	2.18	14.45	2.93	20.06	4.8	15.33	2.5	16.7	2.36
				4399 PULP	2.2	1.5	38.7	11.2	13.5	49.9	6	1224.1	0.8	1.4	1.1	5	< .1	542.1	132.4	59.4	124.5	14.63	61.1	15	1.9	12.66	2.68	18.41	4.24	14.2	2.26	13.99	2.12
				4404 PULP	2.3	1.7	36.1	10.6	14.7	58.3	6	1216.2	1	1.6	1.1	5	< .1	522.6	134	60.6	127.3	15.22	59.3	13.6	1.95	14.62	2.75	19.68	4.55	14.54	2.32	15.4	2.13
				4420 PULP	2.3	1.4	38.5	11.9	13.4	52.5	8	1262.2	0.9	1.5	0.7	6	< .1	570.4	135	63.5	127.5	15.67	61.2	13.9	2.06	14.31	2.98	20.31	4.59	15.07	2.47	15.68	2.27
				4426 PULP	2.7	1.6	39.9	11.1	14.9	57.4	6	1227.7	0.8	1.6	1.2	< 5	0.2	537.9	134.6	62.2	127.1	15.71	63.8	13.3	2.16	14.33	2.82	20.4	4.79	15.31	2.34	15.45	2.28
				4447 PULP	3	1.7	40.3	10.4	13.6	53.1	7	1296	0.9	1.1	0.5	9	0.2	506	135.3	60.5	125.6	15.47	58.8	13.2	2.21	15.14	3.01	20.39	4.61	15.38	2.43	15.14	2.11
				4455 PULP	2.5	1.4	38	11.2	13.7	53.2	5	1187.1	0.8	1.3	0.7	< 5	< .1	497.3	133.3	61.6	127.5	15.69	61.1	13.4	2.18	14.51	2.87	20.09	4.8	15.41	2.43	16.01	2.29
				4469 PULP	19.3	12	23.3	4.9	20.4	102.1	3	441.3	1.6	16.9	17.9	103	10.5	173.3	41.6	55.6	94.2	12.37	47.3	9.3	2.27	7.33	1.18	7.11	1.31	3.79	0.57	3.54	0.59
				ACMEStandard	18.4	3.6	19.8	12.4	25.3	22.9	9	300.4	4.3	11.1	10.8	131	10.9	348.5	27.6	10.6	21.8	3	13.3	3.5	0.99	3.71	0.66	4.01	0.95	2.81	0.43	2.9	0.43
				ACMEStandard	18.7	3.7	18.9	12.6	25.4	24.3	10	309.3	4.5	11.8	11.1	126	10.9	366.3	27.9	10.8	24.1	3.04	13.6	3.2	1.09	3.69	0.67	4.22	0.95	2.82	0.44	2.8	0.46
				ACMEStandard	19.1	3.6	20.3	12.5	25.6	23.6	8	313.3	4.6	11.8	11.1	129	11.3	370.7	27.8	11.4	23	3.14	14.4	3.3	1.03	4.04	0.68	4.33	0.94	2.85	0.46	3.01	0.47
				ACMEStandard	18.4	3.7	19.4	12.5	24.9	23.3	8	309.9	4.5	12.6	10.9	124	10.9	360.8	27.9	10.6	23	3.01	14.2	3	1.05	3.66	0.64	4.25	0.9	2.72	0.44	2.79	0.47
				ACMEStandard	18.4	3.8	20	12.2	25.4	23.7	9	315.3	4.7	11.4	11	132	10.3	350.9	27.8	11.4	24.6	3.02	13.6	3.4	1.08	4.02	0.63	4.32	0.96	2.81	0.43	2.91	0.44
				ACMEStandard	19.7	3.6	19.7	12.4	25.7	22.7	8	312.9	4.4	11.1	11.6	129	10.9	355.1	27.9	11.2	24.1	2.92	13	3.3	1.07	3.64	0.68	4.19	0.93	2.75	0.41	2.94	0.43
				ACMEStandard	20.4	3.5	20.9	11.6	25.6	22.6	9	309.9	4.6	10.6	11.2	129	11.1	355.3	27.9	11	24	3.05	14.4	3.1	1.06	3.89	0.66	4.38	0.97	2.86	0.43	3.09	0.46
				ACMEStandard	18.3	3.8	19.8	11.1	25.1	23.7	8	305.7	4.5	11.2	11.1	133	11.9	349.3	28.1	11.4	23.9	3.08	14.1	3.2	1.07	3.79	0.64	4.23	0.97	2.87	0.44	2.87	0.45
				ACMEStandard	18.8	3.7	19.7	12.4	25	23.2	10	307.2	4.3	11.2	11.2	132	10.4	350.1	27.9	11.3	24.1	2.98	13.2	3.4	1.03	3.67	0.64	4.15	0.91	2.82	0.43	2.84	0.45
				ACMEStandard	19.2	3.5	19	12.9	25.9	23.1	8	314	4.6	11.8	12.1	129	10.7	361.4	28.7	11.3	23.3	3.05	13.6	3.3	1.06	3.77	0.69	4.2	0.97	3.04	0.45	2.9	0.46
				ACMEStandard	18	4	19.3	12.5	25.3	22.5	8	306.5	4.4	11	11.2	131	10.3	349	28.1	11.2	24.7	3.05	14	3.2	1.02	3.94	0.67	4.36	0.94	2.82	0.44	2.99	0.46

Group 1f method

Hole ID	Northing	Easting	Elevation	Sample number	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppb	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppb	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm
MR-60	6451576	519721.25	263.32	4050	0.78	2.67	2.09	1.9	13	2.1	0.3	10	0.43	0.7	0.24	0.5	1.1	29.9	0.01	0.19	0.02	< 2	0.02	0.004	4.2	5.8	0.01	5.7
MR-60	6451576	519725.97	254.5	4051	0.96	4.24	3.58	12.1	100	3	0.3	13	0.51	1.2	0.42	1	1	25.9	0.02	0.66	0.18	2	0.02	0.003	4.1	7	0.01	5.7
MR-60	6451576	519730.75	245.73	4052	0.32	1.9	1.42	1.9	11	1.2	0.3	11	0.25	8.9	0.12	3.2	0.5	9.6	< .01	0.15	< .02	< 2	0.01	0.001	1.4	3.5	0.01	2.5
MR-60	6451576	519735.59	236.99	4053	1.01	3.35	2.69	2.2	13	3.1	0.3	11	0.64	0.7	0.23	0.4	1.1	20.1	0.01	0.23	0.02	< 2	0.02	0.003	3.4	5.4	0.01	5.9
MR-60	6451576	519740.47	228.28	4054	0.75	2.9	2.28	1.9	12	2.1	0.2	10	0.45	0.6	0.3	0.2	1.2	25.2	< .01	0.2	0.02	< 2	0.01	0.003	3.9	5	0.01	5.8
MR-60	6451576	519745.41	219.6	4055	0.81	2.93	9.55	3.4	13	2.5	0.2	12	0.94	0.7	0.38	< .2	1	24.3	0.01	0.17	0.02	2	0.05	0.003	3.3	5.5	0.04	5.1
MR-60	6451576	519750.38	210.96	4056	0.67	2.37	1.65	1.1	16	2	0.2	10	0.44	0.7	0.17	0.3	0.9	25.7	0.01	0.17	< .02	< 2	0.01	0.003	3.4	4.8	0.01	4.6
MR-60	6451576	519755.41	202.34	4057	0.59	2.12	2.36	1.3	9	1.7	0.2	9	0.4	0.4	0.16	0.2	0.8	19.5	< .01	0.15	< .02	< 2	0.01	0.002	3.4	5	0.01	3.8
MR-60	6451575.5	519760.5	193.77	4058	0.75	2.87	3.01	2.3	10	2.3	0.3	7	0.47	0.6	0.14	0.2	0.7	14.5	0.01	0.19	< .02	< 2	0.01	0.002	2.8	5	0.01	3.4
MR-60	6451575.5	519765.66	185.22	4059	0.5	1.5	1.36	0.9	8	1.5	0.1	5	0.31	0.4	0.14	0.2	0.8	20.1	< .01	0.1	< .02	< 2	0.01	0.002	3.5	4.5	< .01	3.6
MR-60	6451575	519770.84	176.71	4060	0.58	2.12	1.27	1.4	11	1.6	0.2	7	0.57	0.4	0.15	0.6	0.7	14.2	< .01	0.14	< .02	< 2	0.01	0.002	2.2	4.8	< .01	2.9
MR-60	6451574.5	519778.22	164.85	4063	0.66	1.93	1.61	3.8	9	1.9	0.2	8	0.42	0.5	0.15	< .2	1.2	26	0.01	0.14	< .02	< 2	0.01	0.003	3.5	5.5	0.01	3.7
MR-60	6451574	519780.34	161.47	4065	0.75	2.5	1.55	1.8	15	2	0.2	15	0.78	0.6	0.26	< .2	2.1	34.1	< .01	0.17	0.02	4	0.01	0.003	3.2	9.1	0.01	5.5
MR-60	6451574	519782.47	158.1	4067	0.79	3.13	6.75	43.7	31	2.3	0.4	25	0.99	1.4	0.24	0.4	2.4	56.4	0.08	2.26	0.03	2	0.04	0.006	3.8	7.3	0.04	8.3
MR-60	6451574	519784.63	154.74	4069	0.66	2.45	1.94	1.5	13	1.9	0.2	18	0.61	1	0.25	0.6	2.7	39.7	0.01	0.13	0.02	5	0.02	0.005	3.9	9.4	0.01	5.9
MR-60	6451573.5	519786.78	151.37	4071	0.77	4.03	10.32	7.3	14	2.2	0.3	14	0.88	1.2	0.19	0.3	2.1	44.1	0.01	0.21	0.02	6	0.01	0.003	3.3	8.1	0.01	7.5
MR-60	6451573.5	519788.94	148.02	4073	0.77	2.88	2.07	2.4	16	2	0.2	13	0.76	1.1	0.2	< .2	1.7	30.8	0.01	0.18	< .02	3	0.01	0.003	2.6	7.8	0.01	4.3
MR-60	6451573	519791.09	144.67	4075	0.77	2.31	2.22	1.8	14	2.2	0.3	14	1.19	1	0.23	0.4	1.9	39.3	0.01	0.18	< .02	6	0.01	0.003	3.4	7.5	0.01	5
MR-60	6451573	519793.25	141.32	4077	0.43	1.74	3	1.8	11	1.5	0.2	19	0.66	0.6	0.2	0.7	2	42.9	0.01	0.12	0.02	5	0.01	0.005	5	6.6	0.01	5.6
MR-60	6451572.5	519795.44	137.98	4079	0.53	1.79	1.6	2.3	13	1.5	0.2	12	0.59	0.7	0.17	4.3	2.4	61.2	0.01	0.15	0.04	2	0.01	0.005	5.4	5.8	0.02	6.1
MR-60	6451572.5	519797.63	134.65	4081	0.66	2.26	1.71	1.3	11	1.9	0.2	16	0.45	1	0.19	0.7	3.3	70.7	< .01	0.12	< .02	2	0.01	0.006	6.4	6.6	0.01	4.9
MR-60	6451572	519799.84	131.32	4084	7.51	2.41	9.28	1.6	49	5.7	2.9	38	1.45	10.1	0.38	0.6	2.6	63.4	< .01	0.31	0.02	6	0.1	0.006	4.4	9.1	0.06	4.5
MR-60	6451572	519802.06	128	4086	0.58	2.11	1.61	1.5	19	1.8	0.4	65	1.79	0.8	0.26	0.2	3.9	75.5	< .01	0.13	0.02	8	0.13	0.011	3.4	6.5	0.08	4.5
MR-60	6451571.5	519804.25	124.68	4088	0.57	1.64	1.45	1.8	12	1.5	0.3	13	0.64	1.1	0.19	0.4	3.1	97	< .01	0.1	< .02	4	0.02	0.007	8	5.9	0.02	5.3
MR-60	6451571.5	519806.47	121.36	4090	0.69	2.39	3.22	2.9	17	2.1	0.5	31	1.22	1.2	0.38	0.3	6.2	122.3	0.01	0.15	0.03	10	0.04	0.011	10.7	10.4	0.03	6.8
MR-60	6451571	519808.69	118.04	4092	0.51	1.71	2.31	3.5	14	1.8	0.4	7	0.61	0.9	0.21	< .2	5.3	94	0.01	0.09	< .02	7	0.02	0.008	10.2	5.5	0.02	6
MR-60	6451571	519810.88	114.71	4094	0.85	2.78	7.49	63.2	24	3.1	1.2	28	0.41	4	0.61	0.9	23.2	232.3	0.02	3.37	0.06	2	0.03	0.027	46.3	6	0.02	18.3
MR-60	6451571	519813.09	111.37	4097	0.41	1.76	5.3	1.4	9	1.3	0.2	9	0.71	5.5	0.11	0.4	21.2	173.5	0.01	0.04	< .02	< 2	0.03	0.022	63	6.4	0.01	12.7
MR-60	6451570.5	519818.53	103.01	4102	0.38	1.44	2.34	2.3	6	9.8	0.5	2	0.47	0.7	0.17	0.3	19.9	29.6	0.01	0.06	< .02	2	0.03	0.005	20.3	4.9	0.41	7.1
MR-60	6451570.5	519822.88	96.29	4106	0.42	2.72	8.59	15.2	8	4	2.8	53	0.97	0.4	0.86	0.3	37.5	8.4	0.01	0.03	< .02	6	0.05	0.007	52.1	6.9	0.74	49.6
MR-60	6451570.5	519828.25	87.87	4107	0.69	5.9	7.68	11.9	31	3	1.3	28	0.72	< .1	0.73	0.4	24.7	6.5	0.01	0.1	< .02	4	0.11	0.007	39	6.6	0.37	40.1
MR-60	6451570.5	519833.56	79.41	4108	0.73	3.32	4.18	8.7	21	3.7	2	98	1.01	< .1	0.56	1.2	35.4	3.8	0.01	0.04	< .02	12	0.1	0.008	68.2	9.1	0.44	48.2
MR-35	6453344	519578.5	184.36	4169	0.89	2.7	1.51	2.1	14	2.4	0.3	17	0.51	0.7	0.21	< .2	1.2	25	< .01	0.19	0.03	< 2	0.01	0.003	3.8	5.7	0.01	5.4
MR-35	6453344	519573.13	175.92	4170	0.74	2.62	1.48	3	18	2	0.2	15	0.38	1	0.4	0.2	1.2	34	0.01	0.15	0.02	< 2	0.01	0.004	5	5.2	< .01	4.8
MR-35	6453344	519567.78	167.49	4171	0.75	2.5	2.53	2.1	32	2.4	0.5	14	0.43	1.5	0.34	0.2	0.9	48.1	0.01	0.14	0.09	3	0.01	0.005	5.9	5.3	0.01	4.6
MR-35	6453344	519562.38	159.09	4172	0.66	2.67	1.17	1.1	37	2	0.4	15	0.41	0.7	0.27	0.3	1	20.6	< .01	0.13	< .02	< 2	0.01	0.003	4	5.8	0.01	3.5
MR-35	6453344	519556.94	150.69	4173	0.81	2.51	1.91	0.9	42	1.9	0.3	19	0.73	0.9	0.39	0.2	2	30.3	< .01	0.14	0.02	5	0.03	0.004	3.9	6.1	0.03	4.8
MR-35	6453344	519549.31	138.97	4176	0.52	1.91	1.77	2.5	26	1.3	0.2	6	0.33	0.7	0.26	< .2	1	22.5	< .01	0.09	< .02	< 2	0.01	0.003	3	4	0.01	3.7
MR-35	6453344	519547.13	135.63	4178	0.82	2.42	1.48	1.3	22	2	0.3	16	0.49	1.2	0.3	< .2	2.6	26.1	< .01	0.13	0.03	< 2	0.02	0.002	3.4	5.6	0.02	4.5
MR-35	6453344	519544.94	132.29	4180	0.88	2.43	1.75	2.9	13	1.9	0.3	51	1.79	1.1	0.35	0.2	3.2	38.5	< .01	0.14	0.02	3	0.09	0.004	3.2	7.3	0.1	5.3
MR-35	6453344	519542.75	128.95	4182	1.01	2.67	1.83	2.6	17	2.1	0.3	12	0.58	2.7	0.38	0.5	4.7	69.1	< .01	0.16	0.02	5	0.03	0.006	4.5	7.9	0.02	6.7
MR-35	6453344	519540.53	125.61	4184	0.97	2.93	2.96	4.2	16	2.8	0.9	105	2.21	2.1	0.56	0.6	2.8	67.2	0.01	0.28	0.04	7	0.1	0.006	4.7	9.1	0.08	8
MR-35	6453344	519538.34	122.28	4186	0.48	13.04	3.01	13.2	18	1.4	0.2	20	0.53	4.9	0.33	2.2	2.2	41.6	< .01	0.38	< .02	2	0.03	0.004	2.9	5.3	0.02	3.9
MR-35	6453344	519536.13	118.95	4188	1.02	3.08	4.87	1.4	28	2.2	0.4	14	0.55	1.3	0.31	2	3.4	69.7	< .01	0.14	< .02	< 2	0.02	0.008	5.4	6	0.01	4.6
MR-35	6453344	519533.91	115.62	4190	1.24	2.63	2.53	6	20	2.4	0.7	68	1.98	2.6	0.48	0.5	4.4	83	0.02	0.2	0.05	11	0.03	0.007	6.7	9.8	0.02	7.5
MR-35	6453344	519531.69	112.3	4192	0.83	2.52	2.12	3.3	13	1.9	0.2	9	0.4	2.6	0.24	0.7	3	79.9	< .01	0.1	0.02	< 2	0.02	0.006	7.4	6.6	0.01	10.4
MR-35	6453344	519529.47	108.97	4194	0.64	2.22	2.21	1.1	14	1.7	0.2	7	0.51	2.7	0.33	1.1	4.4	59.1	< .01	0.11	0.02	< 2	0.02	0.005	6.2	6.5	0.02	12.4
MR-35	6453344	519527.25	105.65	4196	0.64	2.28	1.21	1.5	13	1.9	0.2	12	0.58	0.6	0.29	5.9	1.8	29.2	< .01	0.11	< .02	< 2	0.01	0.002	2.9	6	0.02	3.3
MR-35	6453344	519525.03	102.33	4198	0.68	2.02	1.53	1.3	11	1.9	0.2	12	1.29	1	0.31	1.4	3	64.7	< .01	0.12	0.03	7	0.03	0.006	4.7	10.3	0.02	7.1
MR-35	6453344	519522.78	99.02	4200	0.86	2.66	1.33	1.3	30	2.3	0.4	32	0.97	1.2	0.34	1.4	4.4	64.1	< .01	0.12	< .02	4	0.05	0.01	6.7	12.8	0.03	11.4
MR-39	6451512	520047.31	265.38	4218	0.82	2.62	2.52	2	18	2	0.3	19	1.06	1.1	0.28	0.3	2.1	51	0.01	0.18	0.03	5	0.05	0.006	5	10.2	0.06	9
MR-39	6451512	520044.09	255.93	4219	0.6	1.52	3.22	1.8	11	2.4	0.4	9	1.36	4.9	0.26	0.6	4.9	162.3	< .01	0.32	0.03	6	0.03	0.014	10.8	15.2	0.02	26.2
MR-39	6451512.5	520040.84	246.47	4220	0.71	2.5	1.56	0.9	11	1.8	0.3	11	0.44	0.5	0.24	0.2	1	21.9	0.01	0.13	0.02	< 2	0.01	0.003	3.5	6	0.01	4.7
MR-39	6451512.5	520037.59	237.01	4221	0.59	2.05	1.89	1.3	21	1.6	0.2	11	0.35	0.8	0.37	0.4	0.9	22.2	< .01	0.1	0.14	< 2	0.01	0.002	3.6	6.2	0.01	5.2
MR-39	6451513	520034.41	227.54	4222	0.64	2.17	1.55	1.7	32	1.6	0.2	15	0.58	0.7	0.3	0.3	0.8	20.7	< .01	0.12	0.22	< 2	0.01	0.003	3.4	5.4	0.01	3.9

Hole ID	Northing	Easting	Elevation	Sample number	B ppm	Al %	Na %	K %	W ppm	Sc ppm	Tl ppm	S %	Hg ppb	Se ppm	Te ppm	Ga ppm	Li ppm
MR-60	6451576	519721.25	263.32	4050	4	0.05	0.009	0.03	0.1	0.1	< .02	0.02	< 5	< .1	< .02	0.2	0.2
MR-60	6451576	519725.97	254.5	4051	4	0.07	0.009	0.05	0.2	0.2	< .02	0.02	16	< .1	< .02	0.3	1.1
MR-60	6451576	519730.75	245.73	4052	1	0.06	0.006	0.04	< .1	0.1	< .02	0.01	5	< .1	< .02	0.1	
MR-60	6451576	519735.59	236.99	4053	2	0.08	0.004	0.05	0.2	0.1	< .02	0.01	< 5	< .1	< .02	0.2	0.1
MR-60	6451576	519740.47	228.28	4054	4	0.08	0.003	0.05	< .1	0.2	< .02	< .01	< 5	< .1	< .02	0.2	0.3
MR-60	6451576	519745.41	219.6	4055	3	0.06	0.004	0.04	0.1	0.2	< .02	0.01	< 5	< .1	< .02	0.2	0.2
MR-60	6451576	519750.38	210.96	4056	3	0.06	0.002	0.04	0.1	0.1	< .02	< .01	< 5	< .1	< .02	0.2	0.1
MR-60	6451576	519755.41	202.34	4057	1	0.05	0.002	0.03	< .1	0.1	< .02	0.01	< 5	< .1	< .02	0.2	0.2
MR-60	6451575.5	519760.5	193.77	4058	1	0.04	0.002	0.03	0.1	0.1	< .02	< .01	< 5	< .1	< .02	0.2	0.2
MR-60	6451575.5	519765.66	185.22	4059	2	0.04	0.002	0.03	< .1	0.1	< .02	0.01	< 5	< .1	< .02	0.1	0.2
MR-60	6451575	519770.84	176.71	4060	3	0.04	0.002	0.03	0.2	0.1	< .02	0.01	< 5	0.1	< .02	0.1	0.2
MR-60	6451574.5	519778.22	164.85	4063	3	0.07	0.002	0.05	< .1	0.1	< .02	< .01	< 5	< .1	< .02	0.2	0.4
MR-60	6451574	519780.34	161.47	4065	4	0.14	0.004	0.06	0.2	0.2	< .02	0.01	< 5	< .1	< .02	0.4	1.2
MR-60	6451574	519782.47	158.1	4067	3	0.12	0.003	0.04	< .1	0.1	< .02	0.02	< 5	< .1	< .02	0.4	2.7
MR-60	6451574	519784.63	154.74	4069	3	0.17	0.002	0.04	< .1	0.2	< .02	0.03	< 5	< .1	< .02	0.5	1.8
MR-60	6451573.5	519786.78	151.37	4071	3	0.13	0.002	0.02	0.1	0.1	< .02	< .01	< 5	0.1	< .02	0.5	1.4
MR-60	6451573.5	519788.94	148.02	4073	2	0.1	0.003	0.03	0.1	0.1	< .02	0.02	< 5	< .1	< .02	0.4	0.7
MR-60	6451573	519791.09	144.67	4075	4	0.16	0.002	0.04	0.2	0.1	< .02	< .01	< 5	< .1	< .02	0.7	1.9
MR-60	6451573	519793.25	141.32	4077	3	0.23	0.002	0.03	0.1	0.2	< .02	0.01	< 5	< .1	0.02	0.6	3.3
MR-60	6451572.5	519795.44	137.98	4079	4	0.24	0.002	0.04	< .1	0.2	< .02	< .01	< 5	< .1	< .02	0.7	2.8
MR-60	6451572.5	519797.63	134.65	4081	5	0.2	0.002	0.06	< .1	0.2	< .02	< .01	< 5	0.1	< .02	0.5	1.6
MR-60	6451572	519799.84	131.32	4084	5	0.22	0.002	0.07	< .1	0.2	0.03	0.34	22	0.1	< .02	0.6	2.9
MR-60	6451572	519802.06	128	4086	3	0.19	0.002	0.04	0.1	0.2	< .02	0.01	< 5	< .1	< .02	0.6	1.6
MR-60	6451571.5	519804.25	124.68	4088	7	0.29	0.003	0.09	< .1	0.2	< .02	< .01	< 5	< .1	< .02	0.9	3.9
MR-60	6451571.5	519806.47	121.36	4090	6	0.26	0.004	0.09	0.4	0.3	< .02	< .01	< 5	< .1	0.02	0.7	2.1
MR-60	6451571	519808.69	118.04	4092	6	0.26	0.003	0.1	0.2	0.2	< .02	< .01	< 5	< .1	< .02	0.8	2.3
MR-60	6451571	519810.88	114.71	4094	8	0.33	0.004	0.11	0.1	0.3	< .02	0.02	6	< .1	0.03	0.9	7
MR-60	6451571	519813.09	111.37	4097	9	0.57	0.009	0.08	< .1	0.2	< .02	0.01	< 5	0.3	< .02	1.5	14.2
MR-60	6451570.5	519818.53	103.01	4102	15	1.04	0.014	0.18	< .1	0.6	0.02	0.01	< 5	< .1	< .02	2.8	18.5
MR-60	6451570.5	519822.88	96.29	4106	10	1.09	0.015	0.28	< .1	2.6	0.07	0.02	< 5	0.1	< .02	4	25.5
MR-60	6451570.5	519828.25	87.87	4107	7	0.66	0.048	0.27	< .1	0.5	0.05	0.02	< 5	0.4	< .02	3.3	16.9
MR-60	6451570.5	519833.56	79.41	4108	3	0.71	0.028	0.16	< .1	1.2	0.03	< .01	< 5	< .1	< .02	4.6	21.3
MR-35	6453344	519578.5	184.36	4169	3	0.08	0.009	0.06	0.1	0.2	< .02	0.01	< 5	< .1	< .02	0.3	0.4
MR-35	6453344	519573.13	175.92	4170	4	0.07	0.003	0.04	< .1	0.2	< .02	< .01	< 5	0.2	< .02	0.3	0.3
MR-35	6453344	519567.78	167.49	4171	8	0.07	0.001	0.04	0.2	0.1	< .02	< .01	< 5	0.1	0.02	0.4	0.3
MR-35	6453344	519562.38	159.09	4172	4	0.07	0.002	0.05	0.1	0.2	< .02	< .01	< 5	< .1	< .02	0.3	0.3
MR-35	6453344	519556.94	150.69	4173	5	0.11	0.002	0.07	< .1	0.2	< .02	< .01	6	< .1	< .02	0.4	0.7
MR-35	6453344	519549.31	138.97	4176	9	0.09	0.003	0.06	< .1	0.2	< .02	< .01	< 5	< .1	< .02	0.3	0.3
MR-35	6453344	519547.13	135.63	4178	3	0.14	0.006	0.09	0.1	0.1	< .02	0.01	< 5	< .1	< .02	0.3	0.4
MR-35	6453344	519544.94	132.29	4180	4	0.11	0.002	0.07	< .1	0.2	< .02	< .01	< 5	0.2	< .02	0.3	0.6
MR-35	6453344	519542.75	128.95	4182	6	0.17	0.003	0.11	< .1	0.2	< .02	0.01	< 5	< .1	< .02	0.6	0.8
MR-35	6453344	519540.53	125.61	4184	7	0.23	0.003	0.15	0.1	0.4	< .02	< .01	10	< .1	< .02	0.9	1.2
MR-35	6453344	519538.34	122.28	4186	4	0.09	0.004	0.07	0.1	0.1	< .02	< .01	10	< .1	< .02	0.3	
MR-35	6453344	519536.13	118.95	4188	4	0.13	0.003	0.07	< .1	0.1	< .02	0.01	< 5	< .1	< .02	0.4	0.5
MR-35	6453344	519533.91	115.62	4190	8	0.19	0.003	0.12	0.6	0.3	< .02	< .01	5	0.2	< .02	0.9	0.9
MR-35	6453344	519531.69	112.3	4192	6	0.18	0.007	0.1	< .1	0.2	< .02	< .01	< 5	0.2	< .02	0.5	0.5
MR-35	6453344	519529.47	108.97	4194	4	0.16	0.003	0.09	0.2	0.1	< .02	< .01	6	< .1	< .02	0.6	0.7
MR-35	6453344	519527.25	105.65	4196	2	0.14	0.004	0.07	< .1	0.1	< .02	< .01	5	0.1	< .02	0.5	0.7
MR-35	6453344	519525.03	102.33	4198	4	0.16	0.003	0.09	0.4	0.1	< .02	< .01	< 5	< .1	< .02	0.6	0.7
MR-35	6453344	519522.78	99.02	4200	3	0.2	0.004	0.11	0.2	0.3	< .02	< .01	< 5	0.2	0.02	0.8	0.8
MR-39	6451512	520047.31	265.38	4218	3	0.06	0.003	0.03	< .1	0.2	< .02	0.06	< 5	< .1	< .02	0.3	0.4
MR-39	6451512	520044.09	255.93	4219	8	0.34	0.003	0.19	0.2	0.5	< .02	0.04	5	0.3	0.03	0.9	2.5
MR-39	6451512.5	520040.84	246.47	4220	2	0.07	0.002	0.04	0.1	0.1	< .02	0.01	< 5	< .1	< .02	0.3	0.2
MR-39	6451512.5	520037.59	237.01	4221	3	0.07	0.002	0.04	< .1	0.2	< .02	< .01	< 5	< .1	< .02	0.3	0.3
MR-39	6451513	520034.41	227.54	4222	1	0.05	0.001	0.03	< .1	0.1	< .02	< .01	< 5	< .1	< .02	0.2	0.2

Hole ID	Northing	Easting	Elevation	Sample number	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppb	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppb	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm
MR-39	6451513	520031.19	218.07	4223	0.57	2.26	1.45	1.4	14	1.5	0.2	12	0.37	0.8	0.56	0.2	1.1	23.4	0.01	0.12	0.07	< 2	0.01	0.003	4.3	4.2	< .01	5
MR-39	6451513	520028.03	208.59	4224	0.59	1.76	1.63	3.2	142	1.3	0.2	5	0.33	0.9	0.68	0.2	1	30	< .01	0.1	0.36	< 2	0.01	0.003	4.2	4.1	< .01	4.5
MR-39	6451513.5	520024.84	199.11	4225	1.02	2.72	3.84	1.6	433	2.1	0.3	16	0.4	1	1.09	0.4	1.1	42.6	< .01	0.12	1.22	< 2	0.01	0.005	5.9	6.4	0.01	6.7
MR-39	6451513.5	520021.66	189.64	4226	0.63	1.89	1.33	0.7	44	1.4	0.2	12	0.36	0.7	0.72	< .2	1.1	29.1	< .01	0.1	0.04	< 2	0.01	0.004	4.4	5	0.01	4.9
MR-39	6451514	520018.41	180.19	4227	0.96	3.07	1.36	1.6	19	2.5	0.2	15	0.55	0.8	0.3	0.3	0.8	17.5	< .01	0.15	0.07	< 2	0.01	0.002	2.9	6	< .01	3.6
MR-39	6451514.5	520015.16	170.74	4228	0.65	2.03	1.23	1.1	9	1.6	0.2	12	0.37	0.4	0.33	< .2	1	34.1	< .01	0.11	0.02	< 2	0.01	0.004	4.6	5.1	0.01	4.2
MR-39	6451515	520011.84	161.31	4229	1.03	3	1.1	1.2	15	2.4	0.3	19	0.54	1	0.54	< .2	1.2	35.6	< .01	0.16	0.02	< 2	0.01	0.004	3.9	5.9	< .01	4.9
MR-39	6451515	520008.53	151.88	4230	0.63	2.07	3	0.8	8	1.8	0.3	11	0.36	1.3	0.48	< .2	1.1	23.7	< .01	0.12	0.02	< 2	0.01	0.003	3.8	6	< .01	4
MR-39	6451515.5	520004.59	140.56	4232	1.26	2.85	0.88	0.7	12	2.7	0.3	17	0.55	1	0.37	< .2	0.9	10	< .01	0.17	0.02	< 2	< .01	0.002	2.3	5.6	< .01	2.7
MR-39	6451515.5	520003.28	136.79	4234	2.07	2.43	2.39	5.2	15	6.8	0.8	15	0.72	4.3	0.36	< .2	3.5	52.7	< .01	0.12	0.02	2	0.03	0.006	5.6	6.6	0.03	10.5
MR-39	6451516	520001.97	133.01	4236	0.77	1.87	1.81	1	15	6.9	1	16	0.68	13.5	0.63	< .2	7.7	93.2	< .01	0.09	0.03	< 2	0.02	0.009	11.3	5.3	0.03	12.7
MR-39	6451516	520000.66	129.23	4238	0.54	2.05	1.67	2.9	26	8.1	0.7	17	0.45	15.6	0.67	< .2	3.9	50.3	0.01	0.14	0.03	< 2	0.05	0.014	5.8	4.3	0.02	5.2
MR-39	6451516	519999.34	125.45	4240	0.86	2	1.72	0.8	12	29.3	1.2	15	0.61	73.3	1.12	0.3	3.6	54.4	0.01	0.12	0.02	6	0.2	0.087	9.8	6	0.03	4.9
MR-39	6451516	519998.03	121.68	4242	0.92	2.23	1.8	1.7	23	94.4	1.6	52	2.13	248	2.01	< .2	10.8	23.1	0.01	0.13	0.08	6	0.35	0.13	15.3	4.7	0.15	5.5
MR-39	6451516	519996.72	117.9	4244	14.72	3.38	1.05	3.2	283	4374	35.6	28	3.13	10966.9	288.01	2.8	7.2	19.6	< .01	0.83	1.82	164	0.1	0.034	29.3	7.9	1.98	22.6
MR-39	6451516.5	519994.78	112.32	4245	459.96	1.66	1.63	3.2	96	523.3	14.2	70	2.81	3043	22.2	32.8	6.7	7.4	0.01	2.15	0.11	108	0.19	0.056	17.1	11.6	2.53	3.6
MR-39	6451516.5	519994.09	110.34	4247	5.79	2.07	0.8	1.7	22	46.7	0.8	3	0.55	47.7	1.89	1.8	1.7	12	< .01	0.11	0.02	16	0.07	0.015	2.2	29.8	0.69	4.5
MR-39	6451516.5	519990.84	100.88	4252	0.18	18.4	0.61	159.8	13	360.6	84.1	64	1.15	98.6	3.57	67.2	1	35.8	0.01	< .02	0.18	49	0.26	0.064	3.8	44.4	3.34	18.6
MR-39	6451516.5	519987.63	91.43	4257	1	63.17	6.15	23.2	71	21.2	18.5	173	3.98	0.8	0.94	2.3	9	89	0.01	0.07	0.04	116	0.82	0.1	29.7	7.7	1.44	516.4
MR-39	6451517	519984.41	81.97	4258	1.6	13.89	4.61	19.1	60	11.8	13.5	150	2.16	0.1	0.65	< .2	8.1	40.2	0.01	0.06	< .02	71	0.68	0.054	13.1	21.3	0.78	612.7
MR-39	6451517.5	519981.19	72.51	4259	0.57	4.61	6.81	10.7	17	2.2	1.3	92	1.01	< .1	0.58	< .2	24.7	7.9	0.01	0.04	< .02	2	0.1	0.006	26.8	5.6	0.38	46.2
MR-29	6451518.5	520016.5	271.42	4260	2.07	2.26	2.42	3.5	14	29.9	0.4	15	0.39	67.5	2.26	0.5	1.6	42.8	0.01	0.12	0.04	3	0.01	0.005	6.9	5.9	0.03	9.9
MR-29	6451518.5	520011.47	262.78	4261	3.59	1.97	2.05	1.3	13	5.3	0.2	12	0.35	21.8	0.36	0.2	1.3	44.7	< .01	0.12	0.03	3	0.01	0.005	6.5	6.3	0.02	8.2
MR-29	6451518.5	520005.94	253.27	4262	0.87	2.72	2.09	1.1	15	4.4	0.2	17	0.48	6.7	0.51	< .2	2.2	54.3	< .01	0.12	0.05	2	0.01	0.005	7.3	6.6	0.01	8.9
MR-29	6451518.5	520001.41	245.49	4263	0.76	1.84	1.17	0.7	14	1.9	0.2	12	0.32	2.4	0.35	0.2	1	21.6	< .01	0.09	0.09	< 2	0.01	0.002	3.8	4.6	0.01	4.7
MR-29	6451518.5	519996.38	236.86	4264	0.69	2.53	1.33	1.3	16	2.7	0.2	10	0.42	3.1	0.43	< .2	1	22.3	< .01	0.12	0.14	< 2	0.01	0.003	3.9	5.3	0.01	5.4
MR-29	6451518.5	519991.31	228.23	4265	0.59	1.79	1.38	1.1	112	1.5	0.2	11	0.34	1.5	0.35	< .2	0.9	21.1	< .01	0.09	0.64	2	0.01	0.003	4	4	< .01	4.2
MR-29	6451518.5	519986.28	219.6	4266	0.67	1.89	1.55	1.1	236	1.9	0.2	7	0.34	1.6	0.47	0.3	0.9	27.9	< .01	0.09	0.42	< 2	0.01	0.003	4	5.1	0.01	4.2
MR-29	6451519	519981.22	210.97	4267	0.64	2	1.18	0.6	10	1.5	0.2	10	0.42	1	0.37	< .2	0.9	26	< .01	0.12	0.06	< 2	0.01	0.003	3.7	4.9	0.01	4.5
MR-29	6451519	519976.16	202.35	4268	0.53	1.81	2.73	2.4	26	1.4	0.2	11	0.31	1.3	0.66	0.2	0.9	37.2	< .01	0.15	0.09	< 2	0.01	0.004	5.3	5.9	< .01	4.8
MR-29	6451519	519971.09	193.73	4269	0.53	1.85	1.3	1.4	92	1.5	0.1	11	0.32	0.8	0.56	< .2	1	25.7	< .01	0.12	0.62	< 2	0.01	0.003	4.3	4.8	0.01	3.7
MR-29	6451519	519966	185.11	4270	0.54	2.17	0.8	1	18	1.6	0.2	17	0.35	1	0.48	0.2	0.8	21.1	< .01	0.09	0.03	< 2	0.01	0.003	3.6	5	< .01	3.4
MR-29	6451519	519960.94	176.5	4271	0.82	2.45	0.66	1	27	2	0.2	12	0.42	1	0.61	< .2	0.8	18.4	< .01	0.11	0.1	3	0.01	0.002	2.8	5.1	0.01	2.6
MR-29	6451519	519955.84	167.89	4272	0.62	2.16	1.22	1.1	28	1.8	0.2	14	0.36	1.2	0.68	< .2	0.9	27.4	0.01	0.1	0.07	5	0.01	0.002	3	5.4	< .01	2.8
MR-29	6451519.5	519953.81	164.44	4273	0.76	2.36	1.5	3.7	29	2	0.3	14	0.72	2.4	1.21	0.7	1.6	21.9	< .01	0.13	0.04	3	0.04	0.005	2.5	5.9	0.03	3.7
MR-29	6451519.5	519951.78	161	4274	0.78	2.12	2.27	2.9	56	2	0.3	10	0.34	3.2	1.34	0.2	2	28	< .01	0.1	0.08	< 2	0.01	0.002	3.3	5.6	0.01	4.1
MR-29	6451519.5	519949.75	157.56	4275	0.67	1.93	0.98	0.9	12	1.7	0.3	22	0.69	2.3	0.57	< .2	2.1	33.5	< .01	0.09	0.02	< 2	0.03	0.003	3	6.8	0.03	4.6
MR-29	6451519.5	519947.69	154.12	4276	0.84	2.12	1.76	0.8	10	1.8	0.5	19	1.96	7.4	0.99	0.2	4.7	111.7	< .01	0.13	0.03	11	0.02	0.008	8.7	9.8	0.03	13.1
MR-29	6451519.5	519945.66	150.68	4277	0.61	1.92	1.33	1.5	12	1.8	0.4	23	1.01	4.6	0.71	< .2	3.5	43.7	< .01	0.11	0.02	4	0.02	0.004	6	8	0.01	7.1
MR-29	6451519.5	519943.63	147.23	4278	0.39	1.03	1.32	1.6	10	1.6	0.3	6	0.21	2.4	0.24	< .2	3.3	106.4	< .01	0.05	< .02	< 2	0.02	0.008	12.8	4.3	0.01	12.3
MR-29	6451519.5	519941.59	143.79	4279	1.03	2.8	4.33	3.5	16	2.7	0.5	56	4.11	5	0.5	0.3	31.4	136.8	< .01	0.28	0.03	37	0.04	0.012	9.4	12.3	0.02	12.9
MR-29	6451519.5	519939.53	140.36	4280	0.63	1.35	1.67	1.8	9	2.5	0.3	10	0.29	4.6	0.26	0.3	5.1	144.3	< .01	0.05	< .02	< 2	0.02	0.011	13.7	7	0.01	9.7
MR-29	6451519.5	519937.5	136.92	4282	0.56	1.73	0.87	0.6	11	1.9	0.4	23	1.1	2.9	0.23	< .2	2.4	86.8	< .01	0.09	0.02	8	0.02	0.008	5.8	8.4	0.02	4.4
MR-29	6451519.5	519935.47	133.48	4283	0.5	1.6	1.38	1.2	10	1.3	0.2	8	0.83	1.9	0.29	< .2	3.5	98.5	< .01	0.07	0.02	5	0.02	0.007	7.7	7.2	0.01	4.9
MR-29	6451520	519933.41	130.04	4284	0.43	1.59	1.57	0.9	11	1.5	0.3	10	1.17	2.7	0.28	0.2	2.6	70.3	< .01	0.09	0.02	7	0.02	0.005	4.8	6.9	0.02	3.9
MR-29	6451520	519931.38	126.6	4285	0.53	1.71	1.92	1.3	10	1.6	0.3	16	1.12	1.9	0.43	< .2	3.9	82.6	< .01	0.07	0.03	8	0.02	0.007	8.1	8.8	0.02	4.5
MR-29	6451520	519929.31	123.17	4287	0.45	1.5	1.04	1.1	7	5.3	0.4	2	0.44	1.2	0.14	0.2	7.3	22.8	< .01	0.04	< .02	2	0.03	0.002	7.8	20.2	0.11	8.1
MR-29	6451520	519924.22	114.58	4288	9.15	0.8	2.92	10.7	33	57.8	11.9	6	0.77	17.2	2.15	13	12.9	29.3	< .01	< .02	1.4	114	0.19	0.006	8.9	86	4.54	7.5
MR-29	6451520	519919.09	105.99	4289	1.08	5.15	1.54	2	29	2.8	0.9	53	0.57	0.6	0.2	0.5	2.4	7.4	0.01	0.08	0.02	4	0.11	0.004	16.1	5.4	0.45	17.9
MR-29	6451520.5	519913.97	97.41	4290	1.23	69.2	11.76	23.1	233	35.2	17.4	353	2.59	0.7	0.68	1	2.7	16.4	0.02	0.02	0.11	39	1.14	0.042	7.3	52.9	2.98	435.4
MR-29	6451520.5	519908.81	88.83	4291	0.52	3.47	0.92	11.9	8	3.3	0.9	111	0.71	0.2	0.15	< .2	1.6	6.1	0.01	0.08	< .02	6	1.07	0.019	3.7	26	1.02	139.2
MR-29	6451520.5	519903.69	80.25	4292	0.44	2.8	4.26	22.8	10	1.6	0.8	35	0.6	< .1	1.01	< .2	15.1	6.7	0.04	0.03	< .02	5	0.17	0.007	30	4.8	0.26	53.8
MR-29	6451521	519898.53	71.67	4293	0.63	14.08	3.58	3.3	8	1.9	0.8	56	0.64	< .1	2.77	< .2	37.6	7.5	< .01	0.09	< .02	3	0.1	0.013	43.4	5.8	0.29	39.8

Hole ID	Northing	Easting	Elevation	Sample number	B ppm	Al %	Na %	K %	W ppm	Sc ppm	Tl ppm	S %	Hg ppb	Se ppm	Te ppm	Ga ppm	Li ppm
MR-39	6451513	520031.19	218.07	4223	3	0.06	0.002	0.03	0.1	0.1	< .02	0.01	< 5	0.1	< .02	0.3	0.3
MR-39	6451513	520028.03	208.59	4224	3	0.06	0.002	0.03	0.1	0.1	< .02	0.01	< 5	0.1	< .02	0.3	0.3
MR-39	6451513.5	520024.84	199.11	4225	5	0.09	0.003	0.05	< .1	0.1	< .02	< .01	< 5	0.3	0.08	0.4	0.5
MR-39	6451513.5	520021.66	189.64	4226	5	0.08	0.002	0.05	< .1	0.2	< .02	0.01	< 5	< .1	0.05	0.4	0.4
MR-39	6451514	520018.41	180.19	4227	1	0.05	0.004	0.04	0.2	0.1	< .02	0.02	< 5	0.2	0.02	0.3	0.2
MR-39	6451514.5	520015.16	170.74	4228	3	0.08	0.006	0.05	< .1	0.1	< .02	< .01	< 5	< .1	0.02	0.4	0.2
MR-39	6451515	520011.84	161.31	4229	1	0.05	0.005	0.03	< .1	0.2	< .02	< .01	< 5	< .1	< .02	0.3	0.2
MR-39	6451515	520008.53	151.88	4230	3	0.07	0.004	0.04	< .1	0.2	< .02	< .01	< 5	0.1	< .02	0.3	0.3
MR-39	6451515.5	520004.59	140.56	4232	< 1	0.05	0.003	0.04	< .1	0.1	< .02	0.02	< 5	0.2	0.02	0.3	0.2
MR-39	6451515.5	520003.28	136.79	4234	6	0.47	0.003	0.17	< .1	0.3	< .02	< .01	< 5	< .1	< .02	1.2	10.3
MR-39	6451516	520001.97	133.01	4236	8	0.55	0.006	0.14	< .1	0.4	< .02	< .01	< 5	0.1	0.03	1	13.6
MR-39	6451516	520000.66	129.23	4238	7	0.18	0.004	0.11	< .1	0.1	< .02	< .01	5	0.2	< .02	0.4	1.2
MR-39	6451516	519999.34	125.45	4240	10	0.29	0.006	0.19	< .1	0.3	< .02	0.05	9	< .1	< .02	0.7	1.5
MR-39	6451516	519998.03	121.68	4242	16	0.47	0.01	0.25	0.5	0.4	< .02	< .01	9	< .1	< .02	0.9	4.6
MR-39	6451516	519996.72	117.9	4244	131	2.23	0.022	0.31	0.4	1.6	0.03	< .01	18	2	< .02	5.4	101.8
MR-39	6451516.5	519994.78	112.32	4245	19	2.03	0.004	0.03	0.1	2	0.2	0.01	31	< .1	0.16	7.3	47.8
MR-39	6451516.5	519994.09	110.34	4247	14	1.61	0.01	0.2	< .1	4.9	< .02	0.01	< 5	< .1	0.02	4.9	37.9
MR-39	6451516.5	519990.84	100.88	4252	46	4.29	0.029	0.39	< .1	6	0.03	< .01	19	< .1	0.02	13.7	103.3
MR-39	6451516.5	519987.63	91.43	4257	8	1.96	0.201	0.68	< .1	10	0.38	0.4	< 5	0.4	0.12	7.4	34
MR-39	6451517	519984.41	81.97	4258	3	1.33	0.222	0.49	< .1	6.4	0.24	0.16	< 5	0.2	0.03	4.9	13.5
MR-39	6451517.5	519981.19	72.51	4259	4	0.73	0.054	0.27	< .1	0.6	0.07	0.01	< 5	0.2	< .02	3.5	16.3
MR-29	6451518.5	520016.5	271.42	4260	7	0.09	0.006	0.04	< .1	0.2	< .02	0.01	< 5	< .1	< .02	0.4	1.4
MR-29	6451518.5	520011.47	262.78	4261	6	0.08	0.003	0.04	< .1	0.1	< .02	0.01	< 5	0.1	0.02	0.3	0.6
MR-29	6451518.5	520005.94	253.27	4262	6	0.07	0.002	0.04	< .1	0.2	< .02	0.01	< 5	< .1	< .02	0.3	0.5
MR-29	6451518.5	520001.41	245.49	4263	5	0.09	0.004	0.06	< .1	0.1	< .02	< .01	< 5	< .1	< .02	0.3	0.4
MR-29	6451518.5	519996.38	236.86	4264	6	0.08	0.005	0.05	< .1	0.1	< .02	0.01	< 5	0.3	< .02	0.3	0.3
MR-29	6451518.5	519991.31	228.23	4265	4	0.07	0.002	0.04	< .1	0.1	< .02	0.01	< 5	< .1	< .02	0.3	0.3
MR-29	6451518.5	519986.28	219.6	4266	4	0.09	0.003	0.06	< .1	0.2	< .02	0.01	< 5	0.1	0.03	0.3	0.2
MR-29	6451519	519981.22	210.97	4267	6	0.09	0.002	0.06	< .1	0.1	< .02	< .01	< 5	0.1	< .02	0.4	0.5
MR-29	6451519	519976.16	202.35	4268	2	0.04	0.002	0.02	< .1	0.1	< .02	< .01	< 5	< .1	0.05	0.3	0.4
MR-29	6451519	519971.09	193.73	4269	5	0.07	0.002	0.04	< .1	0.1	< .02	< .01	< 5	< .1	0.02	0.3	0.5
MR-29	6451519	519966	185.11	4270	3	0.06	0.003	0.04	< .1	0.2	< .02	< .01	< 5	0.3	< .02	0.4	0.2
MR-29	6451519	519960.94	176.5	4271	5	0.07	0.002	0.04	< .1	0.1	< .02	< .01	< 5	< .1	0.04	0.3	0.5
MR-29	6451519	519955.84	167.89	4272	5	0.04	0.005	0.03	< .1	0.1	< .02	< .01	< 5	0.2	0.06	0.2	0.5
MR-29	6451519.5	519953.81	164.44	4273	5	0.14	0.005	0.09	0.1	0.1	< .02	< .01	7	0.3	0.02	0.4	0.7
MR-29	6451519.5	519951.78	161	4274	6	0.12	0.01	0.09	< .1	0.2	< .02	< .01	5	0.1	1.06	0.4	0.6
MR-29	6451519.5	519949.75	157.56	4275	4	0.15	0.004	0.11	< .1	0.2	< .02	< .01	< 5	0.2	< .02	0.4	0.6
MR-29	6451519.5	519947.69	154.12	4276	7	0.31	0.004	0.13	0.3	0.5	< .02	< .01	< 5	< .1	< .02	1.2	2.2
MR-29	6451519.5	519945.66	150.68	4277	6	0.21	0.006	0.08	0.1	0.3	< .02	< .01	< 5	0.1	< .02	0.6	1.5
MR-29	6451519.5	519943.63	147.23	4278	10	0.81	0.003	0.1	< .1	0.4	< .02	< .01	< 5	0.2	< .02	1.8	20.9
MR-29	6451519.5	519941.59	143.79	4279	5	0.17	0.005	0.05	0.5	0.4	< .02	< .01	< 5	< .1	0.02	0.8	1.7
MR-29	6451519.5	519939.53	140.36	4280	8	0.63	0.003	0.11	< .1	0.4	< .02	< .01	< 5	0.3	< .02	1.4	15.9
MR-29	6451519.5	519937.5	136.92	4282	6	0.3	0.004	0.09	< .1	0.3	< .02	< .01	< 5	0.3	< .02	0.8	2.4
MR-29	6451519.5	519935.47	133.48	4283	6	0.32	0.009	0.08	0.1	0.2	< .02	< .01	< 5	< .1	< .02	0.8	3.1
MR-29	6451520	519933.41	130.04	4284	6	0.37	0.003	0.07	0.1	0.3	< .02	< .01	< 5	0.4	< .02	0.7	2.7
MR-29	6451520	519931.38	126.6	4285	6	0.26	0.005	0.09	0.4	0.3	< .02	0.01	< 5	0.1	< .02	0.8	2
MR-29	6451520	519929.31	123.17	4287	7	0.62	0.007	0.2	< .1	0.7	< .02	0.02	< 5	< .1	< .02	1.7	10.3
MR-29	6451520	519924.22	114.58	4288	29	5.32	0.015	0.12	< .1	8.7	0.18	0.03	41	0.8	0.1	15	175.1
MR-29	6451520	519919.09	105.99	4289	12	0.87	0.061	0.15	< .1	0.4	< .02	0.03	< 5	< .1	< .02	3.4	27
MR-29	6451520.5	519913.97	97.41	4290	23	2.38	0.133	0.59	< .1	6.4	0.38	0.58	6	1	< .02	9.1	70
MR-29	6451520.5	519908.81	88.83	4291	8	0.46	0.014	0.19	< .1	0.7	0.13	0.03	< 5	0.2	< .02	2.3	14.8
MR-29	6451520.5	519903.69	80.25	4292	5	0.46	0.037	0.22	< .1	0.5	0.03	0.02	< 5	< .1	< .02	2	11
MR-29	6451521	519898.53	71.67	4293	6	0.6	0.052	0.22	< .1	0.7	0.02	0.01	< 5	0.1	< .02	2.4	11.8

Hole ID	Northing	Easting	Elevation	Sample number	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppb	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppb	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm
MR-28	6448823.5	519820.78	216.07	4295	0.68	2.1	4.06	1.9	7	2.3	0.2	7	0.43	1.2	0.16	0.4	2.6	113	< .01	0.09	< .02	< 2	0.03	0.009	6.1	5.6	0.02	5.5
MR-28	6448823.5	519816.34	207.11	4296	0.62	1.75	3.31	1.1	12	1.7	0.3	15	1.8	1.5	0.35	0.2	5.8	178	< .01	0.1	0.02	18	0.04	0.015	11.1	9.3	0.03	8.9
MR-28	6448823.5	519811.91	198.15	4297	0.77	1.81	6.67	1.5	15	1.9	0.5	20	2.38	1.9	0.84	< .2	11.8	278.4	< .01	0.14	0.05	31	0.09	0.024	17.6	13.9	0.07	14
MR-28	6448823.5	519807.44	189.21	4298	0.51	1.68	3.07	1	13	1.5	0.2	11	0.8	0.9	0.3	0.9	3	131.6	< .01	0.08	< .02	2	0.03	0.011	5.7	6.2	0.03	5.3
MR-28	6448823.5	519802.94	180.28	4299	0.62	2	9.93	0.9	18	1.7	0.3	8	0.4	0.8	0.27	0.4	2.3	109.4	< .01	0.08	< .02	< 2	0.02	0.009	5.4	5	0.01	4.4
MR-28	6448823.5	519801.16	176.71	4300	0.61	2.15	1.44	0.9	13	1.8	0.2	15	0.62	0.8	0.31	0.4	2.7	98	< .01	0.09	< .02	< 2	0.03	0.008	4.3	6.6	0.02	5
MR-28	6448823.5	519799.34	173.14	4301	0.44	1.6	3.4	0.7	13	1.4	0.2	< 1	0.26	1.2	0.33	0.2	3.5	196.3	< .01	0.06	0.02	< 2	0.03	0.015	11.4	4.8	0.02	12.3
MR-28	6448823.5	519797.53	169.57	4302	0.62	2.36	1.78	1.7	15	1.5	0.2	12	0.54	0.9	0.26	1	2.5	68.2	0.01	0.09	0.02	< 2	0.02	0.006	5.1	5.7	0.02	5.6
MR-28	6448823.5	519795.72	166	4303	0.67	2.54	1.78	0.7	14	1.8	0.2	7	0.48	0.7	0.17	0.5	2	55.7	< .01	0.09	< .02	< 2	0.02	0.004	4.1	6.1	0.01	7.6
MR-28	6448823.5	519793.91	162.44	4305	0.53	1.91	1.69	1.4	29	1.5	0.2	12	0.45	1	0.29	0.5	2.4	68.9	< .01	0.08	< .02	2	0.02	0.005	4	6.3	0.02	9.1
MR-28	6448823.5	519792.09	158.88	4306	0.7	2.24	0.73	1	8	1.8	0.2	9	0.45	0.3	0.16	1.2	0.8	11.4	< .01	0.09	< .02	< 2	0.01	0.001	1.7	5.4	< .01	2.1
MR-28	6448823.5	519790.28	155.31	4307	0.57	1.68	2.06	0.9	13	1.5	0.4	57	1.84	1.1	0.32	0.6	4.1	64	< .01	0.09	0.02	13	0.07	0.005	4.7	8.4	0.09	13.6
MR-28	6448823.5	519788.47	151.75	4308	0.55	1.87	1.12	0.9	7	1.6	0.2	< 1	0.33	0.4	0.16	0.3	0.8	15.8	< .01	0.08	< .02	< 2	0.01	0.002	2.6	4.9	< .01	3
MR-28	6448823.5	519786.66	148.19	4309	0.63	1.94	2.26	1	8	1.5	0.2	7	0.37	0.8	0.25	0.2	1.6	28.8	< .01	0.07	< .02	< 2	0.01	0.004	4.4	5.2	0.01	5.5
MR-28	6448823.5	519784.81	144.64	4310	0.52	1.83	1.92	0.5	7	1.5	0.1	4	0.35	0.3	0.23	< .2	1	27.9	< .01	0.07	0.02	< 2	< .01	0.003	5.2	3.2	< .01	3.9
MR-28	6448823.5	519783	141.08	4311	0.52	1.89	1.38	0.4	7	1.4	0.1	4	0.32	0.7	0.2	< .2	1	24.4	0.01	0.06	< .02	< 2	0.01	0.003	5.2	4.8	< .01	3.6
MR-28	6448823.5	519781.16	137.53	4312	0.59	1.95	1.67	1	7	1.6	0.1	6	0.4	0.5	0.21	< .2	1	25.6	< .01	0.08	0.03	< 2	0.01	0.003	5.7	4.6	< .01	5.2
MR-11	6448957	514666.06	243.37	4313	0.56	1.98	1.54	1	5	1.4	0.2	17	0.65	0.5	0.17	< .2	0.9	17.7	< .01	0.07	< .02	< 2	0.03	0.002	3.8	5.5	0.03	2.8
MR-11	6448960.5	514669.41	234.57	4314	0.53	1.84	2.31	0.9	6	1.5	0.2	7	0.37	0.5	0.22	< .2	0.8	16.9	< .01	0.08	< .02	< 2	0.01	0.002	3.2	5.2	0.01	3.9
MR-11	6448963.5	514672.75	225.76	4315	0.54	1.77	1.69	1	7	1.5	0.2	7	0.37	0.4	0.29	0.2	1	29.7	< .01	0.07	< .02	< 2	< .01	0.004	4	4.5	< .01	3.9
MR-11	6448967	514676.06	216.93	4316	0.73	2.24	0.92	0.4	8	1.8	0.2	10	0.51	0.4	0.44	< .2	1.1	17.4	< .01	0.1	< .02	< 2	< .01	0.002	2.9	3.8	< .01	2.7
MR-11	6448970.5	514679.34	208.09	4317	0.73	2.47	2.05	1	11	1.8	0.3	42	2.65	1.1	0.4	0.5	2	46	0.01	0.1	0.04	18	0.2	0.005	5	13.1	0.23	5.8
MR-11	6448971.5	514680.66	204.55	4318	0.58	1.97	1.2	0.9	20	1.4	0.2	25	1.35	0.9	0.27	0.4	1.7	49.4	0.01	0.09	0.02	2	0.06	0.004	3	7.5	0.07	6.4
MR-11	6448973	514681.97	201	4319	0.62	2.18	1.53	0.5	14	2.5	0.3	11	0.38	0.9	0.22	0.3	1.6	43	< .01	0.07	< .02	< 2	0.02	0.003	3.3	6.4	0.01	4.7
MR-11	6448974	514683.25	197.46	4320	2.06	2.2	10.33	2.1	21	4.6	1.6	114	7.89	6.7	0.94	0.3	5.3	41.8	0.01	0.36	0.05	28	0.75	0.09	8.8	7	0.56	7.5
MR-11	6448975.5	514684.56	193.91	4321	0.64	2.53	3.27	1	18	1.7	0.2	21	1	0.4	0.39	0.5	8.6	44.6	< .01	0.09	0.04	2	0.08	0.016	7.7	4.4	0.06	6.1
MR-11	6448977	514685.88	190.35	4322	0.7	2.65	4.19	1.9	21	1.8	0.2	27	1.36	0.8	0.37	0.3	8.2	36.7	0.02	0.11	0.39	3	0.07	0.004	5.8	6	0.08	6.5
MR-11	6448978	514687.16	186.8	4323	0.74	2.75	3.55	2.1	19	1.8	0.2	17	0.64	0.4	0.28	0.5	2.9	21.1	0.02	0.09	0.98	< 2	0.02	0.003	4.8	7.2	0.02	16.5
MR-11	6448979.5	514688.44	183.24	4324	0.66	2.24	2.28	0.9	14	1.7	0.2	8	0.47	0.6	0.27	0.5	2.2	33.5	< .01	0.09	0.03	< 2	0.02	0.003	5.2	5.9	0.02	3.7
MR-11	6448980.5	514689.72	179.68	4326	0.69	3.03	4.64	2.3	18	1.9	0.2	15	0.52	0.3	0.26	0.3	2.9	31.2	0.01	0.09	0.06	< 2	0.02	0.003	5.8	5.9	0.02	6.2
MR-11	6448982	514691.03	176.12	4327	0.66	2.37	1.74	0.8	19	2.1	0.2	15	0.44	0.5	0.3	0.4	2.8	35.8	< .01	0.09	< .02	< 2	0.02	0.003	6.3	5.8	0.02	7.6
MR-11	6448983	514692.28	172.56	4328	0.83	2.56	3.55	1.3	24	2.3	0.3	25	1.32	0.9	0.93	< .2	14.1	61.3	< .01	0.11	0.02	16	0.04	0.007	11.6	11.2	0.05	8.9
MR-45	6451506	519917.06	267.68	4329	0.67	2.47	2.21	1.9	14	2	0.2	19	0.83	0.4	0.38	< .2	2	50.1	0.01	0.12	0.03	< 2	0.04	0.006	5.5	7.9	0.05	8.1
MR-45	6451506.5	519920.09	258.17	4330	0.64	2.32	2.13	1	15	1.6	0.2	13	0.4	0.3	0.36	< .2	1.8	48.7	0.01	0.09	0.06	< 2	0.01	0.005	5.9	6.4	< .01	7.8
MR-45	6451507	519923.16	248.66	4331	1.68	3.52	1.41	1.3	69	3.1	0.3	18	0.65	0.7	0.62	0.5	0.8	21.7	< .01	0.13	2.41	< 2	0.01	0.003	3.2	8.6	0.01	3.6
MR-45	6451507	519926.22	239.14	4332	0.7	2.67	1.46	1.4	63	1.7	0.2	14	0.42	0.2	0.95	0.4	1.5	32.9	< .01	0.09	0.12	< 2	[illegible]	0.004	4.9	6.6	0.01	6.3
MR-45	6451507	519929.25	229.61	4333	0.72	2.29	1.07	1.8	12	1.5	0.2	13	0.41	0.4	0.43	< .2	1.2	22.3	< .01	0.1	0.08	< 2	0.01	0.003	4	5.2	0.01	5.1
MR-45	6451507	519932.25	220.08	4334	0.63	2.16	1.04	0.9	8	1.7	0.2	12	0.39	0.4	0.32	0.2	1.1	19.6	< .01	0.08	0.02	< 2	0.01	0.003	3.4	4.9	0.01	4.4
MR-45	6451507	519935.25	210.54	4335	0.57	1.9	1.21	0.7	6	1.4	0.1	11	0.36	0.2	0.17	< .2	1	23.4	0.01	0.08	0.02	< 2	0.01	0.003	3.9	4.9	< .01	4
MR-45	6451507	519938.19	200.96	4336	0.61	2.17	1.19	1.3	6	1.6	0.2	11	0.34	0.1	0.21	< .2	1.1	23.5	< .01	0.07	0.02	< 2	0.01	0.003	4.3	5.5	< .01	4.4
MR-45	6451507	519941.13	191.42	4337	0.52	1.69	1.48	1.1	6	1.5	0.2	11	0.35	0.3	0.35	< .2	1.1	32	< .01	0.07	0.04	< 2	0.01	0.004	5.3	4.9	< .01	4.7
MR-45	6451507	519944	181.86	4338	0.53	1.67	0.89	0.5	40	1.8	0.3	10	0.29	0.4	0.4	< .2	0.9	25.8	< .01	0.06	0.1	< 2	< .01	0.003	4.2	5.2	< .01	3.1
MR-45	6451507	519946.88	172.28	4339	0.57	1.66	0.8	1.3	11	1.4	0.1	17	0.74	0.2	0.68	< .2	1.3	16.3	< .01	0.07	< .02	4	0.04	0.003	3	6.1	0.03	3.4
MR-45	6451507	519949.72	162.69	4340	0.57	2.19	0.86	0.9	8	1.6	0.2	12	0.38	0.3	0.34	< .2	1.2	16.8	< .01	0.07	< .02	< 2	< .01	0.002	3	6.1	< .01	3.3
MR-45	6451506.5	519950.84	158.86	4341	0.53	1.92	3.49	1.5	13	2.2	0.6	14	0.53	0.9	0.38	< .2	4.1	87.5	< .01	0.06	0.03	< 2	0.03	0.007	6.9	8.7	0.02	14.5
MR-45	6451506.5	519951.97	155.02	4342	0.74	2.45	2.53	2.7	10	2	0.4	21	1.07	1.1	0.37	< .2	4.8	39.9	0.01	0.11	0.03	11	0.02	0.004	4.4	11.2	0.01	6.7
MR-45	6451506.5	519953.06	151.18	4343	0.61	2.3	1.26	2.2	15	2	0.3	20	0.89	2	0.3	< .2	2.9	40.5	0.01	0.08	0.02	5	0.04	0.003	3.9	9.4	0.04	6.8
MR-45	6451506.5	519954.19	147.34	4344	0.64	2.04	2.09	1.2	14	1.8	0.4	20	1.13	5.4	0.28	0.2	3.7	88.6	< .01	0.1	0.02	6	0.02	0.007	7.5	9.5	0.02	12.5
MR-45	6451506.5	519955.31	143.5	4345	0.57	1.94	1.5	4.9	12	1.7	0.5	18	0.86	3.4	0.33	0.2	3.7	115.9	< .01	0.09	0.02	2	0.01	0.009	8.5	9	0.01	9.1
MR-45	6451506.5	519956.41	139.66	4347	0.55	2.14	1.02	2.9	10	2.6	0.7	14	0.4	1.3	0.26	0.2	3.1	51.6	0.01	0.06	0.06	< 2	0.01	0.004	4.4	7.7	0.01	5.4
MR-45	6451506.5	519957.5	135.81	4348	0.64	1.88	1.59	1.3	13	4.4	0.8	45	2.24	10.4	0.42	0.2	10.1	73.8	< .01	0.12	< .02	8	0.04	0.007	7.1	11.9	0.02	7.1
MR-45	6451506	519958.59	131.97	4349	0.63	2.2	0.82	2.1	11	6.6	0.5	23	0.83	9.6	0.29	0.7	3.1	110.4	< .01	0.08	0.03	4	0.02	0.009	6.4	8.7	0.01	4.5
MR-45	6451506	519959.69	128.12	4350	0.48	1.64	0.99	1.1	11	4.8	0.2	11	0.39	8.9	0.36	0.4	5.8	125.6	< .01	0.07	< .02	< 2	0.11	0.055	8.5	5.7	0.01	5.2

Hole ID	Northing	Easting	Elevation	Sample number	B ppm	Al %	Na %	K %	W ppm	Sc ppm	Tl ppm	S %	Hg ppb	Se ppm	Te ppm	Ga ppm	Li ppm
MR-28	6448823.5	519820.78	216.07	4295	7	0.27	0.005	0.16	0.1	0.2	< .02	0.01	< 5	< .1	< .02	0.9	3.7
MR-28	6448823.5	519816.34	207.11	4296	8	0.25	0.004	0.12	0.2	0.3	< .02	< .01	< 5	0.2	0.02	1	2.3
MR-28	6448823.5	519811.91	198.15	4297	8	0.27	0.003	0.1	0.2	0.3	< .02	0.01	< 5	< .1	0.04	1.1	1.9
MR-28	6448823.5	519807.44	189.21	4298	7	0.19	0.002	0.11	0.1	0.1	< .02	0.01	< 5	0.2	0.02	0.5	1.3
MR-28	6448823.5	519802.94	180.28	4299	7	0.18	0.002	0.12	0.1	0.1	< .02	0.01	< 5	< .1	0.02	0.5	1.1
MR-28	6448823.5	519801.16	176.71	4300	4	0.12	0.004	0.07	< .1	0.1	< .02	< .01	< 5	< .1	< .02	0.4	0.6
MR-28	6448823.5	519799.34	173.14	4301	8	0.26	0.002	0.11	< .1	0.2	< .02	< .01	< 5	0.3	0.02	0.8	2.2
MR-28	6448823.5	519797.53	169.57	4302	6	0.21	0.004	0.06	< .1	0.1	< .02	< .01	< 5	< .1	< .02	0.5	1.2
MR-28	6448823.5	519795.72	166	4303	6	0.2	0.003	0.13	< .1	0.1	< .02	0.01	< 5	0.1	< .02	0.6	1.1
MR-28	6448823.5	519793.91	162.44	4305	5	0.13	0.004	0.08	< .1	0.1	< .02	0.01	< 5	0.4	< .02	0.4	0.8
MR-28	6448823.5	519792.09	158.88	4306	4	0.1	0.003	0.06	< .1	0.1	< .02	< .01	< 5	< .1	< .02	0.3	0.5
MR-28	6448823.5	519790.28	155.31	4307	5	0.14	0.004	0.09	< .1	0.2	< .02	0.01	< 5	0.1	< .02	0.5	0.8
MR-28	6448823.5	519788.47	151.75	4308	4	0.06	0.004	0.04	0.1	0.1	< .02	< .01	< 5	< .1	< .02	0.3	0.4
MR-28	6448823.5	519786.66	148.19	4309	5	0.13	0.004	0.08	0.2	0.2	< .02	0.03	< 5	< .1	< .02	0.4	0.6
MR-28	6448823.5	519784.81	144.64	4310	3	0.05	0.003	0.03	0.1	0.1	< .02	< .01	< 5	0.3	< .02	0.3	0.2
MR-28	6448823.5	519783	141.08	4311	5	0.07	0.002	0.04	< .1	0.1	< .02	< .01	< 5	< .1	< .02	0.3	0.2
MR-28	6448823.5	519781.16	137.53	4312	6	0.07	0.002	0.04	< .1	0.1	< .02	< .01	< 5	0.1	< .02	0.3	0.2
MR-11	6448957	514666.06	243.37	4313	3	0.05	0.003	0.03	0.1	0.1	< .02	< .01	< 5	< .1	< .02	0.2	0.2
MR-11	6448960.5	514669.41	234.57	4314	7	0.13	0.004	0.09	< .1	0.2	< .02	< .01	< 5	0.2	< .02	0.4	0.6
MR-11	6448963.5	514672.75	225.76	4315	5	0.08	0.005	0.05	< .1	0.1	< .02	< .01	< 5	< .1	< .02	0.3	0.3
MR-11	6448967	514676.06	216.93	4316	4	0.05	0.001	0.03	< .1	0.1	< .02	0.02	< 5	0.1	< .02	0.2	0.1
MR-11	6448970.5	514679.34	208.09	4317	8	0.13	0.003	0.08	0.2	0.3	< .02	< .01	< 5	< .1	< .02	0.5	0.7
MR-11	6448971.5	514680.66	204.55	4318	7	0.13	0.002	0.08	< .1	0.2	< .02	< .01	< 5	0.2	< .02	0.4	0.6
MR-11	6448973	514681.97	201	4319	7	0.16	0.002	0.11	< .1	0.1	< .02	< .01	< 5	< .1	< .02	0.5	0.6
MR-11	6448974	514683.25	197.46	4320	11	0.27	0.004	0.14	0.3	0.8	< .02	0.02	7	0.1	< .02	1.5	2.4
MR-11	6448975.5	514684.56	193.91	4321	7	0.17	0.005	0.11	< .1	0.2	< .02	< .01	5	< .1	< .02	0.5	1.2
MR-11	6448977	514685.88	190.35	4322	5	0.13	0.003	0.08	< .1	0.2	< .02	< .01	7	0.3	< .02	0.4	0.5
MR-11	6448978	514687.16	186.8	4323	4	0.11	0.003	0.07	< .1	0.1	< .02	< .01	< 5	< .1	< .02	0.4	0.4
MR-11	6448979.5	514688.44	183.24	4324	7	0.18	0.003	0.11	< .1	0.2	< .02	< .01	< 5	0.2	< .02	0.5	0.8
MR-11	6448980.5	514689.72	179.68	4326	5	0.17	0.002	0.12	0.1	0.2	< .02	0.02	< 5	0.2	< .02	0.5	0.7
MR-11	6448982	514691.03	176.12	4327	6	0.17	0.004	0.12	0.1	0.2	< .02	< .01	< 5	< .1	0.02	0.5	0.7
MR-11	6448983	514692.28	172.56	4328	4	0.16	0.002	0.1	0.1	0.3	< .02	0.01	< 5	0.2	0.02	0.6	1.1
MR-45	6451506	519917.06	267.68	4329	4	0.06	0.003	0.03	< .1	0.2	< .02	0.03	< 5	< .1	0.02	0.2	0.3
MR-45	6451506.5	519920.09	258.17	4330	3	0.06	0.002	0.03	< .1	0.2	< .02	< .01	< 5	< .1	< .02	0.3	0.1
MR-45	6451507	519923.16	248.66	4331	2	0.06	0.001	0.04	0.1	0.1	< .02	0.09	< 5	0.1	0.03	0.3	0.3
MR-45	6451507	519926.22	239.14	4332	4	0.07	0.001	0.04	< .1	0.3	< .02	0.02	< 5	< .1	0.04	0.3	0.4
MR-45	6451507	519929.25	229.61	4333	2	0.07	0.002	0.04	< .1	0.2	< .02	0.01	< 5	0.1	< .02	0.2	0.3
MR-45	6451507	519932.25	220.08	4334	4	0.1	0.004	0.06	< .1	0.2	< .02	< .01	< 5	< .1	< .02	0.3	0.4
MR-45	6451507	519935.25	210.54	4335	3	0.07	0.001	0.04	< .1	0.1	< .02	0.03	< 5	< .1	< .02	0.3	0.2
MR-45	6451507	519938.19	200.98	4336	3	0.06	0.003	0.04	< .1	0.1	< .02	< .01	< 5	0.2	< .02	0.3	0.3
MR-45	6451507	519941.13	191.42	4337	3	0.05	0.001	0.03	< .1	0.2	< .02	< .01	< 5	< .1	< .02	0.3	0.2
MR-45	6451507	519944	181.86	4338	4	0.06	0.001	0.04	< .1	0.1	< .02	< .01	< 5	< .1	0.03	0.3	0.2
MR-45	6451507	519946.88	172.28	4339	5	0.07	0.002	0.04	< .1	0.2	< .02	0.01	< 5	< .1	< .02	0.3	0.3
MR-45	6451507	519949.72	162.69	4340	1	0.04	0.001	0.02	< .1	0.1	< .02	< .01	< 5	< .1	< .02	0.2	0.2
MR-45	6451506.5	519950.84	158.86	4341	6	0.24	0.003	0.14	< .1	0.2	< .02	< .01	< 5	0.2	< .02	0.6	3
MR-45	6451506.5	519951.97	155.02	4342	4	0.18	0.002	0.12	0.1	0.2	< .02	< .01	< 5	0.1	< .02	0.8	0.6
MR-45	6451506.5	519953.06	151.18	4343	4	0.17	0.003	0.12	< .1	0.2	< .02	< .01	< 5	< .1	< .02	0.4	0.6
MR-45	6451506.5	519954.19	147.34	4344	6	0.27	0.003	0.15	0.2	0.3	< .02	0.02	< 5	0.2	< .02	0.9	1.8
MR-45	6451506.5	519955.31	143.5	4345	4	0.19	0.002	0.08	0.1	0.3	< .02	< .01	< 5	< .1	0.03	0.6	1.3
MR-45	6451506.5	519956.41	139.66	4347	3	0.18	0.002	0.06	< .1	0.2	< .02	< .01	5	< .1	< .02	0.4	1.1
MR-45	6451506.5	519957.5	135.81	4348	4	0.13	0.002	0.04	0.1	0.2	< .02	0.02	< 5	< .1	< .02	0.5	1
MR-45	6451506	519958.59	131.97	4349	7	0.22	0.003	0.1	0.1	0.2	< .02	< .01	< 5	0.1	< .02	0.6	1.3
MR-45	6451506	519959.69	128.12	4350	11	0.26	0.004	0.14	< .1	0.3	< .02	< .01	< 5	0.2	0.04	0.7	1.7

Hole ID	Northing	Easting	Elevation	Sample number	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppb	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppb	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm
MR-45	6451506	519960.81	124.28	4351	0.56	1.82	1.17	1.4	11	2.3	0.5	18	1.04	2.4	0.45	0.2	3.5	108.4	< .01	0.08	0.03	6	0.02	0.01	6.7	10.9	0.01	5.2
MR-45	6451506	519961.91	120.43	4352	0.46	1.54	1.9	0.8	10	3.3	0.2	11	0.56	2.7	0.29	1.3	3.7	98.3	< .01	0.06	< .02	< 2	0.02	0.008	6.5	7.7	0.02	4.7
MR-45	6451506	519963	116.59	4353	0.74	1.98	2.21	3.9	13	4	0.3	17	0.54	4.2	0.41	0.3	4.7	104.5	< .01	0.07	0.03	12	0.02	0.01	7.8	13.6	0.02	5.4
MR-45	6451506	519964.09	112.74	4355	0.25	1.03	2.36	1.9	5	24.4	1.2	15	3.14	2.7	0.86	1	4.3	33.7	0.01	0.03	0.02	25	0.03	0.006	9.3	39.6	0.39	7.4
MR-45	6451506	519966.84	103.13	4356	0.14	0.92	0.34	3.1	7	53	2.9	1	0.59	3.2	0.35	3.1	0.9	21.8	< .01	< .02	< .02	45	0.2	0.061	4.5	229.1	2.44	14.6
MR-45	6451506	519969.59	93.52	4357	0.65	30.38	5.86	10.3	37	6	5.3	68	1.26	0.4	0.96	0.8	30.4	7.6	0.01	0.03	0.03	12	0.1	0.003	22.9	4.6	0.56	68.2
MR-45	6451506	519972.34	83.9	4358	0.79	18.5	4.46	14.3	72	6.3	4.2	65	1.49	0.1	0.43	< .2	12.8	10.2	0.01	0.05	< .02	30	0.07	0.008	28.2	11.4	0.73	124.5
MR-45	6451506	519975.06	74.29	4359	0.39	11.26	2.57	31.4	17	5	7.9	149	2.35	1.4	0.58	< .2	12.5	7	0.01	< .02	< .02	65	0.21	0.048	25.2	17.9	1.7	86.1
MR-45	6451506	519977.81	64.68	4360	1.85	10.71	9.08	56.7	35	5.7	6.7	158	1.59	< .1	0.36	< .2	11.2	18.2	0.01	0.03	< .02	45	0.28	0.036	28	8.2	0.63	270.4
MR-46	6451508	520045.5	192.9	4362	0.44	1.63	0.97	1.1	14	1.2	0.1	6	0.25	0.3	0.53	< .2	1.1	27.6	< .01	0.06	0.03	2	0.01	0.004	3.9	5.4	0.01	3.8
MR-46	6451508	520045.5	182.9	4363	0.76	2.56	1.19	1.5	7	1.9	0.2	13	0.41	0.7	0.34	< .2	1	34.9	< .01	0.08	0.02	2	0.01	0.004	4.9	6.8	< .01	5.2
MR-46	6451508	520045.5	172.9	4364	0.5	1.51	1.1	2.4	6	1.4	0.1	11	0.39	0.4	0.37	< .2	1.4	28.1	< .01	0.07	< .02	< 2	0.01	0.003	4	5.3	0.01	5.4
MR-46	6451508	520045.5	162.9	4365	0.74	2.36	1.64	1.9	9	1.8	0.2	11	0.5	0.6	0.27	0.6	1.1	34	0.01	0.08	< .02	< 2	0.02	0.004	3.9	6.4	0.01	4.7
MR-46	6451508	520045.5	152.9	4366	0.66	1.52	1.54	1.6	13	1.2	0.2	31	2.05	0.7	0.41	< .2	4.6	32	< .01	0.07	0.02	5	0.14	0.004	3.5	11.1	0.11	4.6
MR-46	6451508	520045.5	142.9	4367	0.58	1.77	1.95	3.8	10	1.9	0.2	12	0.58	2.2	0.26	0.4	1.5	34.4	< .01	0.06	0.03	< 2	0.03	0.004	6	6	0.02	6.1
MR-46	6451508	520045.5	138.9	4368	0.95	2.03	14.95	3.3	187	4.2	2	163	3.8	11.3	1.55	< .2	13.7	173.4	< .01	0.49	0.09	44	0.05	0.019	30.4	28.4	0.1	43.3
MR-46	6451508	520045.5	134.9	4370	0.76	1.92	1.29	3.3	24	1.9	0.6	53	1.77	3.3	0.27	1.3	3.3	59.8	< .01	0.09	< .02	11	0.02	0.006	5.2	8.5	0.02	8
MR-46	6451508	520045.5	130.9	4371	0.57	1.78	2.12	1.2	16	1.4	0.2	23	0.63	1.5	0.21	< .2	2.7	102.6	< .01	0.06	< .02	< 2	0.03	0.009	5	6.1	0.03	5.1
MR-46	6451508	520045.5	126.9	4372	0.66	2.25	0.85	8.8	12	1.7	0.5	11	0.41	1.4	0.29	1.1	3.1	149.7	< .01	0.07	0.02	< 2	0.02	0.013	6.2	5.6	0.01	3.9
MR-46	6451508	520045.5	122.9	4373	0.5	1.51	1.2	1.9	11	1.2	0.3	5	0.55	3.4	0.25	0.8	4.2	141.2	< .01	0.05	0.03	< 2	0.02	0.01	8.1	5.1	0.02	4.7
MR-46	6451508	520045.5	118.9	4374	0.54	1.79	1.3	4.3	15	1.6	1.1	7	0.36	4	0.24	0.9	3.3	79.4	< .01	0.08	< .02	< 2	0.01	0.006	5.4	5	0.01	3.4
MR-46	6451508	520045.5	114.9	4375	0.78	2.13	1.7	1.4	19	1.9	0.4	15	1.22	1.2	0.32	5.8	2.6	91	< .01	0.08	0.02	8	0.02	0.007	5	8.8	0.02	4.1
MR-46	6451508	520045.5	110.9	4377	0.37	1.45	4.68	2.1	10	1.4	0.6	3	1.57	8.8	0.37	3.9	33	62.4	< .01	0.05	0.02	14	0.02	0.007	14.1	6.4	0.04	8.8
MR-46	6451508	520045.5	100.9	4378	0.96	3.05	0.73	2.6	13	5.6	0.5	14	0.5	0.5	0.2	0.6	2.7	14.5	< .01	0.05	< .02	2	0.02	0.002	4.8	6.7	0.18	5
MR-46	6451508	520045.5	90.9	4379	0.39	2.22	1.63	4	4	7.5	1	9	0.39	0.1	0.3	< .2	6.3	15.7	< .01	0.03	< .02	< 2	0.05	0.007	7.4	5	0.39	9.6
MR-46	6451508	520045.5	80.9	4380	0.43	18.47	1.97	2.7	6	2	0.5	14	0.42	0.2	0.42	< .2	5.3	10.3	< .01	0.02	< .02	< 2	0.04	0.004	3.4	4.3	0.4	16.8
MR-46	6451508	520045.5	70.9	4381	1.09	3.52	6.28	4.7	54	2.1	3.1	21	0.73	0.6	0.7	0.5	16.1	9.8	< .01	0.02	0.02	4	0.05	0.008	12.9	4.5	0.63	27.4
MR-46	6451508	520045.5	60.9	4382	0.72	3.71	2.61	3.4	12	1.7	0.4	18	0.52	0.3	0.64	0.3	9.4	8	< .01	0.04	< .02	3	0.03	0.003	4.5	5.3	0.47	21.7
MR-46	6451508	520045.5	50.9	4383	0.51	6.01	2.25	2.7	7	2.4	0.3	13	0.44	0.6	0.48	0.3	9.3	8.1	0.01	< .02	< .02	2	0.03	0.002	5	4.6	0.41	16.9
MR-34	6451510	520012.28	190.25	4385	0.71	2.57	1.22	1.3	25	1.8	0.2	9	0.37	0.6	0.52	0.3	1.3	38.4	< .01	0.08	0.03	< 2	0.01	0.004	5	6.4	0.01	5.3
MR-34	6451510	520009.03	180.79	4386	0.52	2.08	0.98	1.7	15	1.3	0.1	7	0.34	0.6	0.35	0.6	0.9	24.5	0.01	0.07	0.05	< 2	< .01	0.003	3.4	4.1	< .01	2.7
MR-34	6451510	520005.81	171.33	4387	0.6	2.06	1.06	0.6	25	1.6	0.2	8	0.38	1	0.42	0.4	0.9	39.1	< .01	0.06	0.02	< 2	0.01	0.004	4.5	5.5	0.01	3.6
MR-34	6451510	520002.59	161.87	4388	0.58	1.91	1.92	1.2	30	1.5	0.3	8	0.34	2	0.5	0.7	1.1	59.3	< .01	0.07	0.02	< 2	0.01	0.006	5	6.2	0.01	5.4
MR-34	6451510	519999.38	152.4	4389	0.68	2.27	2.59	2.8	10	1.5	0.2	8	0.37	1	0.39	< .2	1	21.3	0.01	0.06	< .02	< 2	< .01	0.003	3.2	7.2	< .01	3.2
MR-34	6451510	519996.19	142.92	4390	0.64	2.16	1.14	1.7	11	1.7	0.2	10	0.45	1.5	0.45	0.2	0.9	18.4	< .01	0.07	0.02	< 2	0.01	0.002	3	4.8	0.01	3.4
MR-34	6451510	519994.91	139.13	4391	0.56	1.72	1.21	3.2	7	6.3	0.6	8	0.3	4.7	0.27	0.4	3.1	57.5	< .01	0.05	< .02	< 2	0.02	0.005	4.8	5.5	0.01	8.8
MR-34	6451510	519993.66	135.34	4393	0.38	1.56	1.78	1.6	8	7.2	0.3	8	0.38	14.1	0.45	2.4	8.9	93.6	< .01	0.04	0.02	< 2	0.02	0.009	14.1	6	0.02	12.7
MR-34	6451510	519992.38	131.54	4394	0.7	2.03	1.33	1	16	21.2	0.7	11	0.49	47.5	0.89	0.4	4.9	60.1	< .01	0.07	< .02	< 2	0.02	0.008	7.2	5.7	0.02	4.5
MR-34	6451510	519991.13	127.75	4395	2.84	2.32	10.62	2.1	25	108.4	2	18	1.59	256.6	5.04	1.7	45.6	83.6	< .01	0.23	0.07	2	0.1	0.049	15.8	5.9	0.03	8.2
MR-34	6451510	519989.84	123.95	4396	1.41	1.93	1.02	2	21	111.7	1.3	13	4.14	265	7.5	19.6	10.5	14.3	< .01	0.19	0.06	10	0.13	0.048	26	7.8	0.09	4.1
MR-34	6451510	519988.91	121.11	4397	33.21	1.93	1.24	2.4	102	898.6	7.1	49	3.38	1735.3	168.31	5.1	11.6	22.9	< .01	1.06	0.22	16	0.31	0.117	26.5	8.2	1.04	5.8
MR-34	6451510	519987.31	116.36	4398	161.52	2.08	4.39	2	214	927.5	8.1	75	3.36	2622.7	281.72	1.2	9.5	25.6	< .01	1.38	0.47	12	0.2	0.064	35.8	6.7	0.29	7.1
MR-34	6451510	519986.06	112.57	4400	0.07	0.14	0.66	1.5	7	107.4	0.7	2	0.45	60.5	0.29	< .2	1.1	29.8	< .01	< .02	0.03	10	0.08	< .001	2.1	2.3	0.89	10.9
MR-34	6451510	519982.94	103.07	4401	0.29	2.16	1.46	9.7	9	23.2	4	14	1.55	3.7	1.58	< .2	8.7	24.6	< .01	< .02	0.02	19	0.2	0.068	33	7.4	0.67	17.6
MR-34	6451510	519979.81	93.57	4402	0.33	4.73	11.82	35.7	52	1.7	1.5	88	0.73	0.4	0.78	< .2	20.6	8.4	0.03	0.02	< .02	7	0.17	0.01	30.2	3.8	0.39	47.7
MR-34	6451510	519976.72	84.07	4403	0.48	5.5	3.42	7.4	25	1.9	0.7	58	0.91	1	0.4	< .2	25.2	5.4	0.01	0.03	< .02	5	0.02	0.002	11.9	4.1	0.45	26.4
MR-43	6451512	520030.16	191.69	4405	2.38	1.8	1.61	1.1	27	8.8	0.3	10	0.37	19.5	4.21	< .2	1.3	35.1	< .01	0.08	0.07	< 2	0.01	0.004	5.2	5.5	0.01	4.7
MR-43	6451512.5	520027.69	182.01	4406	0.97	1.92	1.2	1.9	26	6.8	0.2	10	0.33	9	1.85	< .2	1.3	31.8	< .01	0.06	0.03	< 2	0.01	0.004	4.8	5.4	0.01	4.8
MR-43	6451512.5	520025.22	172.33	4407	0.59	1.66	1.46	0.9	13	1.8	0.1	8	0.29	1.7	0.72	< .2	1.4	34.4	< .01	0.05	0.05	< 2	0.01	0.005	5	5.8	0.01	6.3
MR-43	6451513	520022.72	162.64	4408	0.67	2.15	1.05	2.6	10	2	0.2	11	0.43	1.5	0.73	< .2	1.3	21.6	< .01	0.07	0.02	< 2	0.01	0.003	3.4	5.3	0.01	4.9
MR-43	6451513.5	520020.25	152.96	4409	0.63	2.03	20.7	1.7	7	1.9	0.3	11	0.36	2.2	0.49	< .2	2.1	59.9	< .01	0.07	0.02	2	0.02	0.006	6.3	5.6	0.02	5.2
MR-43	6451514	520017.78	143.28	4410	0.55	1.8	0.78	1.2	8	1.8	0.2	9	0.33	1	0.52	< .2	1	15.8	0.01	0.06	< .02	< 2	0.01	0.002	2.9	5.1	0.01	2.4
MR-43	6451514	520016.78	139.41	4411	0.72	0.79	2.01	1.2	6	4.6	0.3	3	0.18	8.7	2.71	< .2	6.7	101.9	0.01	0.02	0.02	2	0.02	0.012	15.3	3.6	0.01	15

Hole ID	Northing	Easting	Elevation	Sample number	B ppm	Al %	Na %	K %	W ppm	Sc ppm	Tl ppm	S %	Hg ppb	Se ppm	Te ppm	Ga ppm	Li ppm
MR-45	6451506	519960.81	124.28	4351	6	0.31	0.003	0.11	< .1	0.3	< .02	< .01	< 5	< .1	0.02	0.7	3.3
MR-45	6451506	519961.91	120.43	4352	6	0.33	0.005	0.09	< .1	0.3	< .02	< .01	5	0.3	0.02	0.6	2.8
MR-45	6451506	519963	116.59	4353	9	0.24	0.006	0.12	< .1	0.3	< .02	< .01	< 5	< .1	0.03	0.7	1.8
MR-45	6451506	519964.09	112.74	4355	13	1.25	0.007	0.17	0.3	3.2	< .02	0.02	< 5	< .1	< .02	3.7	19.6
MR-45	6451506	519966.84	103.13	4356	34	3.95	0.017	0.17	< .1	6.2	< .02	0.01	5	0.2	< .02	12.8	90.3
MR-45	6451506	519969.59	93.52	4357	3	0.7	0.052	0.29	< .1	1.5	0.1	0.07	< 5	0.3	< .02	2.4	13.4
MR-45	6451506	519972.34	83.9	4358	5	0.94	0.078	0.32	< .1	2.7	0.13	0.06	< 5	< .1	0.03	4.3	24.8
MR-45	6451506	519975.06	74.29	4359	8	1.83	0.055	0.24	< .1	5.7	0.04	0.05	< 5	< .1	< .02	9.4	74.4
MR-45	6451506	519977.81	64.68	4360	2	0.87	0.089	0.41	< .1	2.7	0.19	0.08	< 5	< .1	< .02	3.8	13.8
MR-46	6451508	520045.5	192.9	4362	5	0.09	0.002	0.05	< .1	0.2	< .02	0.02	< 5	< .1	0.02	0.4	0.5
MR-46	6451508	520045.5	182.9	4363	5	0.08	0.003	0.05	< .1	0.1	< .02	0.03	< 5	0.1	0.02	0.4	0.5
MR-46	6451508	520045.5	172.9	4364	6	0.09	0.004	0.06	< .1	0.2	< .02	0.02	< 5	0.2	< .02	0.4	0.5
MR-46	6451508	520045.5	162.9	4365	5	0.1	0.002	0.05	< .1	0.1	< .02	< .01	< 5	< .1	< .02	0.4	0.6
MR-46	6451508	520045.5	152.9	4366	7	0.1	0.003	0.06	< .1	0.2	< .02	< .01	< 5	< .1	< .02	0.4	0.4
MR-46	6451508	520045.5	142.9	4367	11	0.1	0.002	0.06	< .1	0.2	< .02	< .01	< 5	< .1	< .02	0.5	0.4
MR-46	6451508	520045.5	138.9	4368	14	0.82	0.004	0.13	0.1	1.1	< .02	< .01	< 5	< .1	0.04	2.8	18
MR-46	6451508	520045.5	134.9	4370	7	0.3	0.002	0.1	0.1	0.3	< .02	< .01	< 5	< .1	< .02	1	3.5
MR-46	6451508	520045.5	130.9	4371	9	0.22	0.005	0.13	< .1	0.2	< .02	< .01	< 5	< .1	< .02	0.6	0.8
MR-46	6451508	520045.5	126.9	4372	12	0.23	0.005	0.14	< .1	0.3	< .02	< .01	< 5	0.1	0.02	0.7	1.4
MR-46	6451508	520045.5	122.9	4373	10	0.34	0.004	0.11	< .1	0.3	< .02	< .01	< 5	< .1	< .02	0.7	2.4
MR-46	6451508	520045.5	118.9	4374	6	0.24	0.002	0.09	< .1	0.2	< .02	< .01	< 5	0.2	0.02	0.5	1.8
MR-46	6451508	520045.5	114.9	4375	9	0.24	0.003	0.14	0.5	0.3	< .02	< .01	< 5	< .1	< .02	0.9	1.6
MR-46	6451508	520045.5	110.9	4377	9	0.56	0.003	0.14	1	0.2	< .02	0.04	< 5	< .1	0.03	1.1	7.1
MR-46	6451508	520045.5	100.9	4378	14	0.64	0.009	0.24	< .1	0.3	< .02	0.01	< 5	0.2	< .02	1.5	7.7
MR-46	6451508	520045.5	90.9	4379	15	0.91	0.011	0.25	< .1	0.6	< .02	< .01	11	< .1	< .02	2	11.8
MR-46	6451508	520045.5	80.9	4380	9	0.73	0.017	0.2	< .1	0.8	0.02	< .01	< 5	0.1	< .02	1.6	12.3
MR-46	6451508	520045.5	70.9	4381	11	1.06	0.015	0.2	< .1	0.5	0.03	0.13	< 5	0.3	< .02	2.3	21.2
MR-46	6451508	520045.5	60.9	4382	12	0.85	0.012	0.2	< .1	1.3	0.03	0.01	< 5	< .1	0.02	2	20.5
MR-46	6451508	520045.5	50.9	4383	11	0.8	0.018	0.16	< .1	1.6	0.02	0.02	< 5	0.3	< .02	1.9	19.6
MR-34	6451510	520012.28	190.25	4385	6	0.1	0.006	0.06	< .1	0.2	< .02	0.01	< 5	0.1	< .02	0.5	0.5
MR-34	6451510	520009.03	180.79	4386	4	0.06	0.002	0.03	< .1	0.1	< .02	< .01	< 5	0.2	0.04	0.4	0.3
MR-34	6451510	520005.81	171.33	4387	5	0.06	0.002	0.04	< .1	0.1	< .02	0.01	< 5	< .1	< .02	0.4	0.4
MR-34	6451510	520002.59	161.87	4388	6	0.1	0.002	0.06	< .1	0.2	< .02	< .01	< 5	0.2	0.03	0.5	0.6
MR-34	6451510	519999.38	152.4	4389	2	0.04	0.001	0.02	< .1	0.1	< .02	< .01	< 5	0.1	< .02	0.3	0.3
MR-34	6451510	519996.19	142.92	4390	7	0.11	0.003	0.07	< .1	0.2	< .02	< .01	< 5	< .1	0.22	0.5	0.3
MR-34	6451510	519994.91	139.13	4391	5	0.22	0.008	0.14	< .1	0.2	< .02	0.01	< 5	< .1	< .02	0.6	1.3
MR-34	6451510	519993.66	135.34	4393	9	0.47	0.003	0.1	< .1	0.3	< .02	< .01	< 5	< .1	0.02	0.9	12.6
MR-34	6451510	519992.38	131.54	4394	6	0.18	0.005	0.11	< .1	0.2	< .02	< .01	< 5	< .1	< .02	0.5	0.7
MR-34	6451510	519991.13	127.75	4395	10	0.26	0.004	0.12	0.2	0.3	0.03	0.05	6	< .1	0.04	0.7	2.5
MR-34	6451510	519989.84	123.95	4396	15	0.38	0.006	0.17	0.5	0.3	< .02	0.01	< 5	0.1	< .02	0.8	1.8
MR-34	6451510	519988.91	121.11	4397	38	1.26	0.014	0.14	0.8	0.9	0.15	0.03	6	0.5	0.15	2.8	23.3
MR-34	6451510	519987.31	116.36	4398	36	0.81	0.011	0.28	1.1	0.8	0.1	0.01	10	0.2	0.04	2	6.3
MR-34	6451510	519986.06	112.57	4400	17	2.1	0.015	0.27	< .1	3.4	0.02	< .01	< 5	< .1	0.05	4.2	35.5
MR-34	6451510	519982.94	103.07	4401	34	1.34	0.016	0.25	0.2	1.7	0.02	< .01	7	< .1	0.02	3.7	18.7
MR-34	6451510	519979.81	93.57	4402	7	0.73	0.042	0.23	< .1	0.7	0.04	0.01	< 5	< .1	< .02	3.2	23.9
MR-34	6451510	519976.72	84.07	4403	5	0.76	0.025	0.19	< .1	0.9	0.03	0.02	< 5	< .1	< .02	3.1	19
MR-43	6451512	520030.16	191.69	4405	6	0.08	0.002	0.05	< .1	0.1	< .02	0.02	< 5	< .1	0.04	0.4	0.5
MR-43	6451512.5	520027.69	182.01	4406	6	0.1	0.004	0.05	< .1	0.2	< .02	0.04	< 5	0.1	< .02	0.4	0.7
MR-43	6451512.5	520025.22	172.33	4407	7	0.09	0.002	0.05	< .1	0.2	< .02	0.01	< 5	< .1	0.02	0.4	0.5
MR-43	6451513	520022.72	162.64	4408	4	0.06	0.002	0.03	< .1	0.1	< .02	0.01	< 5	< .1	0.08	0.3	0.3
MR-43	6451513.5	520020.25	152.96	4409	12	0.19	0.009	0.12	< .1	0.2	< .02	0.02	< 5	< .1	0.02	0.6	1.4
MR-43	6451514	520017.78	143.28	4410	7	0.1	0.004	0.06	< .1	0.1	< .02	0.01	< 5	< .1	0.03	0.4	0.3
MR-43	6451514	520016.78	139.41	4411	8	0.83	0.002	0.05	< .1	0.4	< .02	< .01	< 5	0.2	< .02	1.6	22.5

Hole ID	Northing	Easting	Elevation	Sample number	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppb	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppb	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm
MR-43	6451514	520015.81	135.54	4412	0.65	1.36	1.74	3.4	7	3.1	0.7	1	0.42	6.8	0.69	0.3	6.6	122.1	0.01	0.04	0.03	2	0.02	0.012	13.1	4.2	0.01	13.3
MR-43	6451514.5	520014.81	131.66	4413	0.47	1.39	1.21	1.6	32	5.4	1.3	< 1	0.52	17	0.65	< .2	5.3	91.6	< .01	0.04	0.22	< 2	0.02	0.008	7.2	3.3	0.02	7
MR-43	6451514.5	520013.84	127.79	4414	0.68	1.8	0.99	1.3	12	2.7	0.7	4	0.34	4.6	0.63	0.3	4.1	183.6	0.01	0.05	< .02	< 2	0.02	0.017	6	5	0.01	5.1
MR-43	6451514.5	520012.84	123.92	4416	0.61	2.39	2.34	1.8	27	2.7	0.4	5	0.42	12.8	0.79	1.8	13.2	190.8	0.01	0.06	< .02	< 2	0.03	0.017	12.6	5.4	0.01	8.8
MR-43	6451515	520011.84	120.05	4417	0.6	2.16	0.58	0.9	13	3	0.3	5	0.42	5.9	0.55	0.9	1.9	70.9	< .01	0.05	< .02	< 2	0.03	0.011	4.3	5.4	0.02	3.9
MR-43	6451515	520010.88	116.17	4418	0.81	1.95	1.5	1.1	21	33	3.4	5	0.48	98.9	1.7	1.2	4.3	120.4	< .01	0.07	0.06	< 2	0.09	0.04	8.2	4.4	0.02	5.1
MR-43	6451515	520009.88	112.3	4419	0.62	2.2	1.72	2.3	40	9.9	4.1	5	0.39	63.6	0.8	2.7	6.3	81.2	0.01	0.05	0.04	2	0.02	0.006	8.5	4.9	0.02	4.8
MR-43	6451515.5	520008.91	108.43	4421	0.58	1.24	4.21	11.7	9	10.6	0.8	7	0.2	20	0.31	1.8	11.8	53.4	0.01	< .02	0.02	4	0.03	0.007	18.2	6.2	0.11	17
MR-43	6451516	520006.44	98.75	4422	0.27	1.48	1.16	4	12	29.2	0.7	7	0.47	0.9	0.15	4.2	1.5	11.1	0.01	< .02	< .02	14	0.04	0.001	3.5	46.5	1.24	3.2
MR-43	6451516.5	520003.97	89.06	4423	6.39	12.11	2.18	18.9	41	40.8	24.2	107	4.25	2.2	0.25	12.3	6.1	12.6	0.03	0.04	0.07	105	0.21	0.05	23.4	74.1	3.77	72.7
MR-43	6451516.5	520001.5	79.38	4424	0.42	41.77	1.29	12.4	31	39.3	16.8	258	2.17	3.7	0.02	0.3	0.3	26	0.01	< .02	< .02	70	0.67	0.056	6.5	65.5	1.46	28.4
MR-43	6451517	519999.03	69.7	4425	3.89	20.4	2.17	27.4	31	51.7	17.4	345	4.89	7.6	0.08	0.5	0.9	12.6	0.01	< .02	0.04	159	0.16	0.03	13.2	175.5	4.07	308.1
MR-40	6451511.5	520052.19	262.31	4427	0.66	2.43	2.34	0.6	12	2.1	0.2	10	0.79	2.9	0.28	0.2	1.4	49.1	0.01	0.1	0.03	< 2	0.03	0.006	5.6	5.7	0.02	7.3
MR-40	6451512	520050.41	252.48	4428	0.62	2.03	2.19	0.9	10	1.7	0.2	4	0.96	1.1	0.36	< .2	2	65	0.01	0.08	0.04	6	0.06	0.006	5.3	7.3	0.05	8.8
MR-40	6451512.5	520048.63	242.64	4429	0.67	2.14	1.81	1.1	9	2.8	0.2	6	0.66	7.2	0.44	0.4	1.6	31.7	0.01	0.09	0.02	< 2	0.02	0.003	5	6.1	0.02	6.5
MR-40	6451512.5	520046.88	232.8	4430	0.48	1.77	2.79	1.4	10	1.2	0.2	4	0.34	0.7	0.38	0.2	1.3	26.9	< .01	0.06	0.02	< 2	0.01	0.003	4.2	4.2	0.01	5.1
MR-40	6451513	520045.13	222.96	4431	0.46	1.82	1.82	0.5	12	1.4	0.2	6	0.35	0.6	0.43	< .2	1.3	27.3	< .01	0.06	0.04	< 2	0.01	0.003	4.6	4.9	< .01	4.4
MR-40	6451513.5	520043.41	213.12	4432	0.53	1.9	1.57	0.4	29	1.4	0.2	5	0.31	0.5	0.74	< .2	1.2	31	0.01	0.05	0.17	< 2	0.01	0.004	4.9	5	0.01	4.7
MR-40	6451514	520041.69	203.28	4433	0.57	1.78	2.85	0.9	160	1.3	0.2	5	0.31	0.5	1.25	0.2	1.1	46.3	0.01	0.06	2.87	< 2	0.01	0.005	7.1	5.6	0.01	5.7
MR-40	6451514	520040	193.43	4434	0.54	1.87	1.84	1.2	25	1.2	0.2	6	0.34	0.4	0.47	< .2	1.1	32.7	< .01	0.06	0.15	< 2	0.01	0.004	5.2	5.8	< .01	4.2
MR-40	6451514.5	520038.31	183.59	4435	0.54	2.02	1.6	1.4	27	1.3	0.1	8	0.36	0.6	0.51	< .2	1.1	28.1	< .01	0.1	0.08	< 2	0.01	0.003	4.7	5.9	0.01	3.7
MR-40	6451515	520036.63	173.74	4436	0.61	2.53	1.48	1	7	1.5	0.2	12	0.39	0.2	0.38	0.2	1	26.7	< .01	0.06	0.03	< 2	0.01	0.004	4	5.8	0.01	4.1
MR-40	6451515.5	520034.97	163.89	4437	0.53	1.94	1.41	0.6	9	1.4	0.2	7	0.4	0.4	0.5	< .2	1.4	37	< .01	0.06	0.02	< 2	0.01	0.004	4.4	6.2	< .01	4
MR-40	6451516	520033.31	154.04	4439	0.76	2.32	1.36	0.6	8	1.9	0.2	10	0.41	0.9	0.3	< .2	1.6	52.2	< .01	0.07	< .02	< 2	0.01	0.006	5.6	7	0.01	3.7
MR-40	6451516.5	520031.66	144.2	4440	0.48	1.54	1.29	0.5	8	1.2	0.2	7	0.33	0.7	0.39	< .2	1.3	24.6	< .01	0.05	< .02	< 2	0.01	0.004	4.9	4.5	0.01	2.9
MR-40	6451517	520031	140.26	4441	0.86	1.95	17.39	3.5	18	2.5	1.3	55	6.92	5.3	0.98	< .2	79.6	239.9	< .01	0.18	0.1	67	0.15	0.039	43.1	20.5	0.13	26
MR-40	6451517	520030.31	136.32	4442	0.33	1.4	3.44	0.9	10	1.3	0.5	5	0.62	3.7	0.45	< .2	9.4	223	< .01	0.04	0.03	< 2	0.02	0.02	18	5.6	0.02	17.2
MR-40	6451517.5	520029.34	130.41	4443	0.56	2.13	1.5	1.3	11	1.7	0.2	10	0.46	1.4	1.49	0.3	4.1	210.2	< .01	0.06	< .02	3	0.02	0.019	7.7	6.2	0.01	6
MR-40	6451517.5	520028.69	126.47	4444	0.41	1.49	0.86	0.6	11	1.1	0.2	9	0.37	1.7	0.54	0.7	4.1	200.1	< .01	0.04	< .02	3	0.03	0.016	8.2	6.1	0.02	5.1
MR-40	6451518	520028.03	122.53	4445	0.63	2.32	1.22	0.8	10	1.7	0.4	8	1.03	1.3	0.33	0.8	3.7	110	< .01	0.06	< .02	4	0.02	0.008	7.7	9.2	0.01	4.6
MR-40	6451518	520027.38	118.59	4446	0.67	1.95	1.62	1	32	1.7	0.5	3	1.46	3	1.12	5.1	4.3	133.6	< .01	0.08	0.02	11	0.24	0.117	8.2	8.6	0.01	4.9
MR-40	6451518.5	520026.72	114.65	4448	0.44	1.34	2.89	2.5	8	33.3	1.2	14	1.61	1.8	1.24	1.3	39.4	47.3	< .01	6.79	< .02	18	0.07	0.005	13.2	78.4	1.13	15.7
MR-40	6451519	520025.09	104.8	4449	1.85	3.95	5.2	4.1	65	30.1	7.2	19	0.91	15	10.29	1.4	11.1	12.4	< .01	0.05	5.46	47	0.06	0.005	9.8	85.7	1.35	34.8
MR-40	6451519.5	520023.47	94.96	4450	5.44	19.51	4.2	11.9	41	42.5	14.1	53	2.55	9.8	0.58	0.5	5.9	20.8	0.01	0.02	0.58	53	0.05	0.012	15	41.4	1.43	47.9
MR-40	6451520	520021.84	85.11	4451	7.99	10.99	6.55	36.8	45	54.6	22.3	127	4.83	7.9	0.69	0.6	11.9	11.3	0.03	0.03	1.04	93	0.05	0.011	8.6	80.9	1.62	40.4
MR-40	6451520.5	520020.22	75.26	4452	10.61	32.7	7.75	25.3	102	93.1	66	169	4.95	100.8	0.81	1.4	18.6	12	0.04	0.09	2.46	67	0.05	0.009	12.3	48.9	1.57	58.7
MR-40	6451521.5	520018.59	65.41	4453	15.67	14.72	13.65	66.9	119	102.9	49.7	452	7.84	33.3	0.54	< .2	22.2	19	< .01	0.03	4.31	78	0.08	0.013	53.7	123.6	2.42	25.4
MR-40	6451522	520016.97	55.56	4454	1.4	75.62	5.48	59.5	48	52.9	15.7	216	4.44	3	0.53	< .2	12.8	10.1	0.03	0.02	1.14	38	0.08	0.019	33.2	60.4	1.88	7.7
MR-60	6451576	519745.41	219.6	4456 dup	0.68	2.93	4	2.8	14	1.9	0.2	14	0.77	0.8	0.44	< .2	1.1	36	< .01	0.14	0.02	2	0.03	0.005	3.5	7.3	0.03	4.3
MR-60	6451573	519791.09	144.67	4457 dup	0.69	2.53	1.74	1.2	14	1.9	0.4	10	1.29	1.5	0.27	0.6	2.7	64.9	< .01	0.11	< .02	4	0.01	0.006	4.6	8	0.01	6
MR-35	6453344	519544.94	132.29	4458 dup	0.62	1.94	1.3	1.7	9	1.4	0.2	61	1.68	0.8	0.32	0.5	3.1	37.1	< .01	0.07	< .02	3	0.08	0.003	3	6.1	0.09	4.7
MR-39	6451514.5	520015.16	170.74	4459 dup	0.52	2.12	1.07	0.8	9	1.4	0.1	9	0.41	< .1	0.33	0.6	1	36.4	< .01	0.07	< .02	< 2	0.01	0.004	4.2	4.9	0.01	3.9
MR-29	6451518.5	519996.38	236.86	4460 dup	0.39	1.53	0.85	0.4	10	1.1	0.1	6	0.29	0.1	0.31	0.6	0.9	18.3	< .01	0.05	0.1	< 2	0.01	0.002	2.8	3.9	< .01	3.3
MR-29	6451520	519933.41	130.04	4461 dup	0.73	3.04	1.36	0.9	14	2.3	0.3	22	1.44	2.7	0.28	0.6	2.7	83.5	< .01	0.09	0.02	6	0.02	0.006	5	7.3	0.02	3.5
MR-28	6448823.5	519790.28	155.31	4462 dup	0.65	2.07	1.86	1.1	11	1.7	0.4	70	1.82	1	0.33	< .2	3.8	71	< .01	0.08	0.02	13	0.07	0.006	5	8.6	0.1	13.2
MR-11	6448983	514692.28	172.56	4463 dup	0.75	2.84	3.1	1.2	19	2.2	0.3	21	1.03	0.8	0.98	0.6	14.6	74.7	< .01	0.09	< .02	11	0.03	0.007	13.5	9.2	0.03	8.4
MR-45	6451506	519959.69	128.12	4464 dup	0.65	2.44	0.96	2	10	3.9	0.2	14	0.51	6.8	0.36	0.9	5.5	137.8	< .01	0.08	< .02	< 2	0.12	0.06	8.9	7.2	0.01	5
MR-46	6451508	520045.5	118.9	4465 dup	0.52	2.18	1.2	2.1	12	1.7	1.2	12	0.47	3.4	0.25	3.5	3.1	76.2	0.01	0.06	< .02	< 2	0.01	0.006	5.6	5.4	0.01	3.2
MR-34	6451510	519991.13	127.75	4466 dup	3.15	2.22	5.17	0.8	18	123.5	2.1	17	1.6	348.3	4.46	1.7	34.7	75.6	< .01	0.24	0.04	3	0.07	0.035	13.4	6.8	0.03	8.8
MR-43	6451515	520009.88	112.3	4467 dup	0.68	2.79	1.91	2.2	40	7.4	0.8	20	0.56	32.1	0.96	1.4	6.5	82.1	0.01	0.07	0.04	2	0.02	0.007	8.4	6	0.02	5.1
MR-40	6451517.5	520029.34	130.41	4468 dup	0.57	2.16	1.23	0.7	13	2	0.2	13	0.4	2.2	1.01	0.3	4.3	180.3	0.01	0.06	< .02	2	0.02	0.013	6.7	6.7	0.01	4.4
MR-60	6451574	519784.63	154.74	RE 4069	0.66	2.34	1.98	1.6	12	2	0.2	12	0.6	1.1	0.27	0.6	2.7	37.9	0.01	0.15	0.02	4	0.02	0.005	4	9.1	0.01	5.8
MR-39	6451512.5	520040.84	246.47	RE 4220	0.69	2.25	1.7	1	9	1.9	0.3	12	0.44	0.7	0.25	0.3	1.1	21.3	< .01	0.13	0.02	< 2	0.01	0.003	3.6	6.2	0.01	5

Hole ID	Northing	Easting	Elevation	Sample number	B ppm	Al %	Na %	K %	W ppm	Sc ppm	Tl ppm	S %	Hg ppb	Se ppm	Te ppm	Ga ppm	Li ppm
MR-43	6451514	520015.81	135.54	4412	8	0.46	0.004	0.1	< .1	0.3	< .02	< .01	< 5	< .1	< .02	0.9	8.2
MR-43	6451514.5	520014.81	131.66	4413	6	0.37	0.006	0.07	< .1	0.2	< .02	< .01	5	0.2	< .02	0.6	3.7
MR-43	6451514.5	520013.84	127.79	4414	6	0.18	0.003	0.1	< .1	0.2	< .02	< .01	< 5	< .1	< .02	0.4	1
MR-43	6451514.5	520012.84	123.92	4416	6	0.2	0.003	0.1	< .1	0.4	< .02	< .01	< 5	0.2	< .02	0.5	1.1
MR-43	6451515	520011.84	120.05	4417	6	0.27	0.004	0.18	< .1	0.2	< .02	< .01	< 5	< .1	< .02	0.5	1.3
MR-43	6451515	520010.88	116.17	4418	10	0.28	0.012	0.15	< .1	0.3	< .02	0.01	8	< .1	0.04	0.5	1
MR-43	6451515	520009.88	112.3	4419	9	0.21	0.008	0.13	< .1	0.3	< .02	< .01	6	< .1	< .02	0.6	2.3
MR-43	6451515.5	520008.91	108.43	4421	14	0.52	0.006	0.24	< .1	1	< .02	< .01	< 5	< .1	0.03	1.7	5.5
MR-43	6451516	520006.44	98.75	4422	17	2.11	0.017	0.06	< .1	3	< .02	0.01	9	0.3	0.02	5.5	36.6
MR-43	6451516.5	520003.97	89.06	4423	9	2.58	0.065	0.13	< .1	12.8	0.11	0.23	9	0.2	0.31	10.1	42.8
MR-43	6451516.5	520001.5	79.38	4424	9	1.27	0.204	0.09	< .1	12.5	< .02	0.07	< 5	< .1	0.04	4.1	20.2
MR-43	6451517	519999.03	69.7	4425	35	3.57	0.051	0.78	< .1	17.2	0.37	0.13	< 5	0.3	0.12	12.7	107.7
MR-40	6451511.5	520052.19	262.31	4427	3	0.06	0.002	0.03	< .1	0.1	< .02	0.04	< 5	0.1	< .02	0.3	0.4
MR-40	6451512	520050.41	252.48	4428	5	0.1	0.002	0.05	< .1	0.2	< .02	0.03	< 5	< .1	< .02	0.4	0.6
MR-40	6451512.5	520048.63	242.64	4429	8	0.13	0.003	0.07	< .1	0.2	< .02	0.02	< 5	0.1	< .02	0.4	0.5
MR-40	6451512.5	520046.88	232.8	4430	6	0.08	0.002	0.05	< .1	0.2	< .02	0.01	< 5	< .1	< .02	0.3	0.3
MR-40	6451513	520045.13	222.96	4431	4	0.08	0.002	0.04	< .1	0.2	< .02	0.01	< 5	< .1	< .02	0.3	0.3
MR-40	6451513.5	520043.41	213.12	4432	7	0.09	0.001	0.05	< .1	0.2	< .02	< .01	< 5	0.1	< .02	0.3	0.2
MR-40	6451514	520041.69	203.28	4433	7	0.1	0.001	0.06	< .1	0.2	< .02	< .01	< 5	< .1	0.03	0.4	0.6
MR-40	6451514	520040	193.43	4434	5	0.06	0.001	0.04	< .1	0.1	< .02	0.01	< 5	< .1	0.02	0.3	0.4
MR-40	6451514.5	520038.31	183.59	4435	5	0.07	0.003	0.04	< .1	0.1	< .02	< .01	< 5	< .1	< .02	0.4	0.6
MR-40	6451515	520036.63	173.74	4436	5	0.06	0.002	0.03	< .1	0.1	< .02	0.01	< 5	< .1	< .02	0.3	0.4
MR-40	6451515.5	520034.97	163.89	4437	5	0.06	0.002	0.04	< .1	0.1	< .02	0.01	< 5	< .1	< .02	0.3	0.2
MR-40	6451516	520033.31	154.04	4439	7	0.08	0.005	0.04	< .1	0.2	< .02	< .01	< 5	< .1	< .02	0.4	0.4
MR-40	6451516.5	520031.66	144.2	4440	8	0.12	0.002	0.07	< .1	0.1	< .02	0.01	< 5	0.1	< .02	0.5	0.4
MR-40	6451517	520031	140.26	4441	17	0.32	0.004	0.13	0.3	0.6	< .02	0.02	< 5	< .1	0.03	2.5	3.5
MR-40	6451517	520030.31	136.32	4442	8	0.8	0.002	0.1	< .1	0.3	< .02	0.03	< 5	0.1	0.02	1.5	12.3
MR-40	6451517.5	520029.34	130.41	4443	13	0.28	0.007	0.08	< .1	0.2	< .02	0.02	< 5	0.1	0.02	0.6	1.5
MR-40	6451517.5	520028.69	126.47	4444	8	0.3	0.003	0.16	< .1	0.2	< .02	0.03	< 5	0.1	0.03	0.7	1.6
MR-40	6451518	520028.03	122.53	4445	8	0.28	0.003	0.11	0.1	0.2	< .02	0.02	< 5	< .1	< .02	0.6	1.2
MR-40	6451518	520027.38	118.59	4446	11	0.29	0.004	0.15	0.2	0.4	< .02	0.03	< 5	0.2	< .02	1	0.9
MR-40	6451518.5	520026.72	114.65	4448	25	2.34	0.01	0.25	0.1	5	0.03	< .01	< 5	< .1	1.16	5.7	32.7
MR-40	6451519	520025.09	104.8	4449	14	1.81	0.014	0.27	< .1	3.6	0.05	< .01	15	3.8	0.11	5.2	29.5
MR-40	6451519.5	520023.47	94.96	4450	20	2.41	0.014	0.24	< .1	5.7	0.07	1.21	< 5	1.3	0.02	6.3	41.7
MR-40	6451520	520021.84	85.11	4451	16	2.53	0.01	0.26	< .1	7	0.09	1.93	< 5	1.8	0.09	8.7	43.6
MR-40	6451520.5	520020.22	75.26	4452	13	2.54	0.011	0.36	< .1	5.9	0.16	2.47	8	2.7	0.07	8.3	41.7
MR-40	6451521.5	520018.59	65.41	4453	21	3.05	0.02	0.31	< .1	4.5	0.05	3.93	40	4.2	0.34	12.3	47.5
MR-40	6451522	520016.97	55.56	4454	17	2.4	0.014	0.19	< .1	4	0.02	1.29	8	1.4	0.06	8.4	38.7
MR-60	6451576	519745.41	219.6	4456 dup	3	0.09	0.003	0.05	< .1	0.3	< .02	0.04	< 5	0.3	< .02	0.3	0.3
MR-60	6451573	519791.09	144.67	4457 dup	5	0.32	0.002	0.06	0.1	0.2	< .02	0.01	< 5	< .1	< .02	1	2.6
MR-35	6453344	519544.94	132.29	4458 dup	4	0.1	0.002	0.07	< .1	0.1	< .02	0.01	< 5	< .1	< .02	0.3	0.3
MR-39	6451514.5	520015.16	170.74	4459 dup	6	0.07	0.005	0.04	< .1	0.2	< .02	< .01	< 5	0.2	< .02	0.4	0.2
MR-29	6451518.5	519996.38	236.86	4460 dup	3	0.05	0.005	0.03	< .1	0.1	< .02	< .01	< 5	< .1	< .02	0.2	0.2
MR-29	6451520	519933.41	130.04	4461 dup	5	0.43	0.003	0.07	< .1	0.3	< .02	< .01	< 5	0.1	< .02	0.9	3.6
MR-28	6448823.5	519790.28	155.31	4462 dup	5	0.15	0.003	0.09	< .1	0.2	< .02	0.02	< 5	0.1	< .02	0.5	0.8
MR-11	6448983	514692.28	172.56	4463 dup	6	0.16	0.002	0.09	< .1	0.2	< .02	< .01	< 5	0.1	< .02	0.6	0.8
MR-45	6451506	519959.69	128.12	4464 dup	10	0.24	0.003	0.13	< .1	0.2	< .02	0.01	< 5	0.1	0.02	0.7	1.1
MR-46	6451508	520045.5	118.9	4465 dup	5	0.19	0.002	0.07	< .1	0.2	< .02	< .01	< 5	< .1	< .02	0.4	1.5
MR-34	6451510	519991.13	127.75	4466 dup	9	0.21	0.004	0.1	0.2	0.2	0.04	< .01	12	< .1	0.02	0.6	1.6
MR-43	6451515	520009.88	112.3	4467 dup	9	0.2	0.009	0.13	< .1	0.3	< .02	0.03	7	< .1	0.02	0.6	1.8
MR-40	6451517.5	520029.34	130.41	4468 dup	7	0.22	0.003	0.1	< .1	0.2	< .02	< .01	< 5	< .1	< .02	0.6	1.1
MR-60	6451574	519784.63	154.74	RE 4069	3	0.16	0.002	0.04	< .1	0.1	< .02	0.03	< 5	0.1	< .02	0.5	1.5
MR-39	6451512.5	520040.84	246.47	RE 4220	2	0.07	0.002	0.04	0.1	0.1	< .02	0.01	< 5	0.2	< .02	0.2	0.4

Hole ID	Northing	Easting	Elevation	Sample number	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppb	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppb	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm
MR-29	6451519	519976.16	202.35	RE 4268	0.54	1.88	2.94	2.8	26	1.6	0.2	5	0.32	1.5	0.65	< .2	0.8	37.3	< .01	0.15	0.1	< 2	0.01	0.004	5.1	6.2	< .01	4.8
MR-29	6451520.5	519913.97	97.41	RE 4290	1.31	69.73	11.84	22.6	241	36	17.4	362	2.66	1	0.69	0.8	2.8	16.7	0.02	0.03	0.11	41	1.17	0.041	7.4	53.2	3.05	449
MR-28	6448823.5	519781.16	137.53	RE 4312	0.59	2.08	1.56	1	6	1.5	0.2	7	0.41	0.5	0.2	< .2	0.9	25.1	0.01	0.08	0.03	< 2	< .01	0.003	5.3	4.7	< .01	4.9
MR-45	6451506.5	519955.31	143.5	RE 4345	0.55	1.85	1.41	5.4	11	1.7	0.6	18	0.86	3.1	0.32	< .2	3.5	113.1	0.01	0.08	0.02	2	0.01	0.009	7.9	9.1	0.01	8.8
MR-34	6451510	519996.19	142.92	RE 4390	0.64	2.13	0.94	1.6	11	1.7	0.2	10	0.45	1.5	0.48	0.4	0.9	17.9	0.01	0.07	0.02	< 2	< .01	0.002	2.8	4.7	0.01	3.1
MR-40	6451512.5	520046.88	232.8	RE 4430	0.48	1.88	3.17	1.3	10	1.3	0.2	5	0.33	0.9	0.4	< .2	1.3	27.3	< .01	0.06	0.03	< 2	0.01	0.003	4.4	4.8	0.01	5.6
MR-40	6451519	520025.09	104.8	RE 4449	1.78	3.92	5.11	3.9	63	29.3	7.2	19	0.89	14.6	9.85	1.3	10.8	12.4	< .01	0.03	5.37	46	0.05	0.005	9.8	84.5	1.34	34.7
MR-46	6451508	520045.5	118.9	RE 4465	0.49	1.97	1.27	2.2	13	1.5	1.1	11	0.45	3.1	0.25	0.8	3.1	71	< .01	0.06	< .02	< 2	0.01	0.005	5.5	4.9	0.01	3.1
				4051B PULP	0.17	4.56	2.13	53.2	10	5.8	2.2	829	4.04	0.1	0.45	0.9	1.2	218.3	0.05	< .02	< .02	5	3.35	0.054	39.6	9.6	0.27	191.8
				4094B PULP	0.19	4.69	2.24	52.4	9	5.8	2.2	813	4	0.8	0.44	< .2	1.2	215.4	0.06	0.02	< .02	4	3.18	0.052	39	8.9	0.28	195.5
				4108B PULP	0.18	5.26	2.11	53.4	8	5.9	2.3	768	3.9	0.3	0.4	0.6	1.1	218.6	0.08	< .02	< .02	2	3.21	0.05	36.2	8.4	0.25	191.7
				4200B PULP	0.18	4.51	1.99	50	7	5.5	2.1	795	4	0.5	0.41	0.4	1	214.6	0.05	0.02	< .02	3	3.23	0.05	32	8.9	0.27	181.1
				4245B PULP	0.2	4.61	2.21	52.7	8	5.7	2.1	784	4.02	0.5	0.39	1.2	1.1	217.3	0.06	< .02	< .02	4	3.36	0.05	36.5	8.4	0.27	202.4
				4259B PULP	0.17	4.73	2.15	52.8	9	5.3	2	770	3.9	0.4	0.41	0.4	1.1	218.4	0.06	0.02	< .02	2	3.19	0.048	33.4	8.3	0.24	177
				4286 PULP	0.18	4.49	2.17	49.3	7	5.5	2	781	3.96	0.5	0.4	0.5	1.1	215.1	0.05	< .02	< .02	3	3.23	0.048	32.6	8	0.27	174.3
				4294 PULP	0.22	4.85	2.21	54.4	8	6.3	2.2	806	4.02	0.3	0.42	0.5	1.2	223.3	0.04	0.02	< .02	2	3.28	0.052	35.4	8.4	0.25	194.3
				4325 PULP	0.17	4.73	1.98	52	7	6.5	2.2	824	4.1	0.4	0.4	0.6	1	218.9	0.05	< .02	< .02	4	3.34	0.057	34	8.8	0.27	172.3
				4354 PULP	0.18	4.74	2.29	50.8	10	5.2	2.1	792	3.91	0.5	0.37	0.2	1	216.3	0.05	< .02	< .02	5	3.27	0.053	34.2	8.7	0.26	193.8
				4361 PULP	0.18	5.16	2.03	58.7	10	5.8	2.2	781	4.02	0.4	0.45	< .2	1.2	232.7	0.07	< .02	< .02	5	3.28	0.051	37.2	7.8	0.24	198.3
				4376 PULP	0.18	5.09	1.93	54.9	5	5.5	2.2	745	3.81	0.5	0.42	0.8	1.1	209.9	0.06	< .02	< .02	2	3.1	0.049	31.7	8.8	0.25	184.7
				4384 PULP	0.17	5.17	2.19	56.6	15	5.3	2.3	790	4.06	0.4	0.46	< .2	1.3	227.1	0.06	< .02	< .02	4	3.18	0.052	39.3	8.6	0.25	207.1
				4399 PULP	0.19	5.25	2.24	56.6	10	7.6	2.2	826	4.29	0.7	0.91	1.2	1.2	237.7	0.08	< .02	< .02	2	3.35	0.053	36.8	9.7	0.28	209.3
				4404 PULP	0.2	4.82	2.17	53.9	9	5.8	2.2	789	4.1	0.3	0.4	0.4	1.1	222.1	0.06	< .02	< .02	3	3.22	0.053	36.1	8.7	0.27	196
				4420 PULP	0.16	4.75	2.08	50.1	9	5.3	2.1	741	3.81	0.5	0.4	0.6	1.1	211.1	0.05	0.02	< .02	4	3.11	0.049	34.4	7.8	0.25	176.3
				4426 PULP	0.21	4.87	2.12	53	8	5.5	2.1	785	4.03	0.4	0.45	0.2	1.2	221.3	0.05	0.03	< .02	3	3.15	0.053	34.5	7.5	0.24	190.8
				4447 PULP	0.19	4.79	1.94	53.5	13	4.8	2.2	755	3.93	0.6	0.42	0.4	1	227	0.04	< .02	< .02	7	3.21	0.051	32.5	8.9	0.24	169
				4455 PULP	0.17	5.34	2.04	53.9	8	5.6	2.2	785	4.08	0.4	0.46	0.6	1.2	222.8	0.05	< .02	< .02	3	3.16	0.052	33.9	8.3	0.26	190.4
				4469 PULP	11.6	42.59	65.95	206.5	509	49.1	17.9	810	3.97	34.8	14.39	2	9.5	134.7	0.84	2.58	3.85	52	1.07	0.128	31.2	53.2	1.28	104.8
				ACMEStandard	6.48	130.22	32.07	156	285	35	12.1	767	3.12	22.7	6.38	26.1	3.6	26	5.61	4.9	5.01	76	0.53	0.091	16.3	160.1	0.59	139.5
				ACMEStandard	6.68	125.74	32.16	154.5	273	33.7	11.7	750	3.14	22	6.11	29.1	3.6	26.5	4.94	4.82	4.98	73	0.5	0.086	16.2	158.3	0.57	141.4
				ACMEStandard	6.62	127.06	32.37	154.9	281	33.7	11.8	771	3.13	21.9	6.27	27	3.8	27.3	5.46	4.81	5.2	74	0.55	0.087	15.8	160.3	0.57	145.4
				ACMEStandard	6.79	127.43	31.98	156	286	34.9	11.8	787	3.19	23.1	6.13	26.7	3.6	26.8	5.55	4.93	5.13	74	0.51	0.086	15.4	161.6	0.57	144.4
				ACMEStandard	6.98	127.85	32.85	159.5	285	35.7	12.4	785	3.25	23.6	6.39	27.5	3.8	27.7	5.77	4.91	5.24	74	0.55	0.092	16.5	164.5	0.58	141.5
				ACMEStandard	6.51	127.22	31.88	157	274	35.8	12.4	774	3.12	22.6	6.1	26.8	3.7	26.8	4.96	4.75	5.14	72	0.55	0.091	15.8	163.2	0.56	144.8
				ACMEStandard	6.63	128.65	30.5	155	269	34.4	11.9	795	3.19	22.7	6.09	25.7	3.5	27.9	5.37	4.75	4.96	73	0.51	0.084	15.6	166.2	0.57	141.2
				ACMEStandard	6.76	131.93	32.62	158.6	301	35.2	12.2	786	3.2	22.4	6.55	26.8	4.1	27.8	5.6	4.91	5.25	76	0.56	0.086	16.8	170.5	0.58	144.3
				ACMEStandard	6.82	131.1	33.02	159.3	287	34.9	11.8	816	3.24	22.1	6.43	28.2	3.8	28.4	5.45	4.97	5.26	78	0.57	0.091	17	170.7	0.59	144.5
				ACMEStandard	6.59	128.88	31.31	160	286	34.9	11.9	801	3.25	22.6	6.06	27.7	3.8	28.1	5.48	4.82	4.88	78	0.56	0.087	16.1	168.3	0.57	138.3
				ACMEStandard	6.67	126.7	31.52	155.3	276	33.5	11.8	796	3.19	21.9	6.1	26	3.8	27.8	5.4	4.71	4.99	76	0.52	0.091	16.4	167.1	0.57	142.6

Hole ID	Northing	Easting	Elevation	Sample number	B ppm	Al %	Na %	K %	W ppm	Sc ppm	Tl ppm	S %	Hg ppb	Se ppm	Te ppm	Ga ppm	Li ppm
MR-29	6451519	519976.16	202.35	RE 4268	3	0.04	0.002	0.02	< .1	0.1	< .02	< .01	< 5	0.1	0.05	0.3	0.3
MR-29	6451520.5	519913.97	97.41	RE 4290	25	2.44	0.134	0.59	< .1	6.4	0.38	0.56	< 5	0.8	< .02	9.3	69.3
MR-28	6448823.5	519781.16	137.53	RE 4312	6	0.07	0.002	0.04	< .1	0.1	< .02	< .01	< 5	0.1	< .02	0.3	0.2
MR-45	6451506.5	519955.31	143.5	RE 4345	6	0.19	0.002	0.08	0.1	0.2	< .02	< .01	< 5	0.1	0.02	0.6	1.2
MR-34	6451510	519996.19	142.92	RE 4390	6	0.11	0.003	0.07	< .1	0.2	< .02	< .01	< 5	0.1	< .02	0.5	0.3
MR-40	6451512.5	520046.88	232.8	RE 4430	5	0.09	0.002	0.05	< .1	0.1	< .02	< .01	< 5	0.1	< .02	0.3	0.1
MR-40	6451519	520025.09	104.8	RE 4449	14	1.8	0.013	0.26	< .1	3.5	0.05	0.02	12	3.8	0.09	5	27.7
MR-46	6451508	520045.5	118.9	RE 4465	5	0.19	0.002	0.07	< .1	0.1	< .02	< .01	6	< .1	< .02	0.4	1.4
				4051B PULP	2	1.94	0.627	0.67	< .1	0.7	0.19	< .01	< 5	0.2	0.03	16.3	
				4094B PULP	5	1.93	0.68	0.7	< .1	0.7	0.2	< .01	< 5	0.3	0.03	15	29.8
				4108B PULP	4	1.86	0.635	0.65	< .1	0.7	0.18	0.04	< 5	0.7	< .02	16	27.9
				4200B PULP	4	1.85	0.644	0.6	< .1	0.6	0.18	0.02	< 5	0.5	0.03	15.1	26.8
				4245B PULP	6	1.84	0.652	0.64	< .1	0.6	0.21	< .01	< 5	0.5	0.03	15.6	29.8
				4259B PULP	5	1.84	0.611	0.66	< .1	0.7	0.18	0.05	< 5	0.4	0.03	15.3	27.1
				4286 PULP	5	1.91	0.621	0.6	< .1	0.7	0.19	0.02	< 5	< .1	0.04	14.6	28.3
				4294 PULP	5	1.89	0.645	0.68	< .1	0.7	0.19	0.05	< 5	0.5	< .02	15.9	27
				4325 PULP	5	1.91	0.661	0.65	< .1	0.7	0.19	< .01	< 5	0.2	< .02	15.6	28.3
				4354 PULP	5	1.88	0.67	0.66	< .1	0.8	0.17	0.04	< 5	0.7	0.05	15.4	28.5
				4361 PULP	5	1.94	0.655	0.68	< .1	1.4	0.2	0.06	< 5	0.8	< .02	16.6	30.2
				4376 PULP	4	1.83	0.62	0.6	< .1	0.8	0.17	0.01	< 5	0.6	0.04	16.2	31.8
				4384 PULP	5	1.95	0.71	0.64	< .1	1.5	0.21	< .01	< 5	0.2	0.04	16.3	31.1
				4399 PULP	5	1.96	0.647	0.68	< .1	0.7	0.19	0.03	< 5	0.1	0.03	17	30.5
				4404 PULP	4	1.92	0.667	0.64	< .1	0.7	0.2	0.03	< 5	0.3	0.05	15.9	29.8
				4420 PULP	5	1.81	0.627	0.65	< .1	0.6	0.2	0.03	< 5	0.2	0.02	15	28.5
				4426 PULP	4	1.86	0.657	0.63	< .1	0.7	0.19	0.02	< 5	0.2	0.02	15.6	27.5
				4447 PULP	5	1.89	0.679	0.67	< .1	1.4	0.18	0.1	5	0.6	0.02	15.1	27.4
				4455 PULP	4	1.84	0.661	0.62	< .1	0.8	0.17	0.03	< 5	0.6	0.03	15.6	28.9
				4469 PULP	1	2.79	0.059	0.18	2.2	6	0.22	0.03	53	0.7	0.06	10	49.5
				ACMEStandard	2	1.66	0.031	0.15	4.2	3.5	1.08	0.06	285	1.2	0.71	5.9	15
				ACMEStandard	1	1.63	0.028	0.15	4	3.5	1.07	0.05	274	1.4	0.74	5.8	
				ACMEStandard	< 1	1.68	0.033	0.16	4	3.7	1.17	0.07	289	1.5	0.71	6	15.4
				ACMEStandard	1	1.69	0.031	0.16	3.9	3.7	1.15	0.07	271	1.4	0.72	6	14.6
				ACMEStandard	2	1.71	0.032	0.16	4.2	3.7	1.21	0.04	288	1.4	0.73	6.3	14.6
				ACMEStandard	2	1.64	0.031	0.15	4.2	3.5	1.09	0.06	272	1.4	0.71	6	14.6
				ACMEStandard	2	1.67	0.031	0.14	3.9	3.7	1.06	0.06	274	1.3	0.7	6.1	15.5
				ACMEStandard	2	1.67	0.033	0.16	4.2	3.6	1.21	0.09	279	1.3	0.73	6.2	15.5
				ACMEStandard	2	1.73	0.032	0.15	4	3.7	1.2	0.06	288	1.3	0.74	6.2	15.2
				ACMEStandard	2	1.69	0.033	0.16	3.9	3.7	1.08	0.08	263	1.3	0.71	6	14.6
				ACMEStandard	1	1.67	0.033	0.15	3.8	3.7	1.08	0.05	274	1.4	0.71	6	14.4

APPENDIX 7 – Whole rock geochemical analytical methods and statistical analysis

The following is the lower detection limits of each element tested under three analytical methods:

Group 4A
-whole rock analysis by $LiBO_2$ fusion – ICP – ES

Leco C (0.01%) + S (0.01%)

Al_2O_3	0.03%	SiO_2	0.02%	Na_2O	0.01%	MgO	0.01%
Fe_2O_3	0.04%	CaO	0.01%	TiO_2	0.01%	P_2O_5	0.01%
MnO	0.01%	K_2O	0.04%	Cr_2O_3	0.0005%	LOI	0.1%
Ba	5 ppm	Ni	30 ppm	Sc	1 ppm	Sr	10ppm
Y	10 ppm	Zr	10ppm				

Modified Group 4B
-30 element ICP-MS analysis from a $LiBO_2$ fusion combined with 38 element ICP-MS analysis from an aqua regia digestion (Group 1F-MS)

LiBO2 Digestion / ICP-MS Elements

Element	Detection Limit (ppm)	Element	Detection Limit (ppm)	Element	Detection Limit (ppm)
Co	0.5	U	0.1	Eu	0.05
Cs	0.1	V	5	Gd	0.05
Ga	0.5	W	0.1	Tb	0.01
Hf	0.5	Y	0.1	Dy	0.05
Nb	0.5	Zr	0.5	Ho	0.05
Rb	0.5	La	0.5	Er	0.05
Sn	1	Ce	0.5	Tm	0.05
Sr	0.5	Pr	0.02	Yb	0.05
Ta	0.1	Nd	0.4	Lu	0.01
Th	0.1	Sm	0.1	Ba	0.5

Aqua Regia Digestion / ICP-MS Elements

Element	Detection Limit	Element	Detection Limit	Element	Detection Limit
Au	0.2 ppb	Ga	0.1 ppm	Sc	0.1 ppm
Ag	2 ppb	Hg	5 ppb	Se	0.1 ppm
Al	0.01 %	K	0.01 %	Sr	0.5 ppm
As	0.1 ppm	La	0.5 ppm	Te	0.02 ppm
B	1 ppm	Mg	0.01 %	Th	0.1 ppm
Ba	0.5 ppm	Mn	1 ppm	Ti	0.001 %

Bi	0.02 ppm	Mo	0.01 ppm	Tl	0.02 ppm
Ca	0.01 %	Na	0.001%	U	0.01 ppm
Cd	0.01 ppm	Ni	0.1 ppm	V	2 ppm
Co	0.1 ppm	P	0.001 %	W	0.1 ppm
Cr	0.5 ppm	Pb	0.01 ppm	Zn	0.1 ppm
Cu	0.01 ppm	S	0.02 %	Li	0.1 ppm
Fe	0.01 %	Sb	0.02 ppm		

Whole rock drill core Lower Detection Limits:

Elements that returned values in the whole rock drill core samples below the lower analytical detection limit for the $LiBO_2$ fusion - ICP-ES method are listed below. More than 50% of the values for MnO and Ni are below the lower detection limits.

Element	CaO	Na_2O	P_2O_5	MnO	Cr_2O_3	Ba	Ni	Sc
	%	%	%	%	%	ppm	ppm	ppm
LDL	0.01	0.01	0.01	0.01	0.0005	5	30	1
Number of samples	253	253	253	253	253	253	253	253
Values < LDL	1	28	24	208	5	11	198	44
Percentages < LDL	0.4	11.1	9.5	82.2	2.0	4.3	78.3	17.4

Elements that returned values in the whole rock drill core samples below the lower analytical detection limit for the $LiBO_2$ fusion - ICP-MS method are listed below. More than 50% of the values for Sn are below the lower detection limits.

Element	Co	Cs	Ga	Nb	Rb	Sn	Ta	U	V	W	Ho	Er	Tm
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
LDL	0.5	0.1	0.5	0.5	0.5	1	0.1	0.1	5	0.1	0.05	0.05	0.05
Number of samples	253	253	253	253	253	253	253	253	253	253	253	253	253
Values < LDL	81	121	7	16	5	165	60	1	81	42	5	1	55
Percentages < LDL	32.0	47.8	2.8	6.3	2.0	65.2	23.7	0.4	32.0	16.6	2.0	0.4	21.7

Elements that returned values in the whole rock drill core samples below the lower analytical detection limit for the aqua regia digestion ICP-MS method are listed below. More than 50% of the values for Cd, W, Tl, S, Hg, Se and Te are below the lower detection limits.

Element	Mn	As	Au	Cd	Sb	Bi	V	Ca	P	Mg	Ti
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%	%
LDL	1	0.1	0.2	0.01	0.02	0.02	2	0.01	0.001	0.01	0.001
Number of samples	253	253	253	253	253	253	253	253	253	253	253
Values < LDL	3	6	91	165	11	83	122	8	1	32	86
Percentages < LDL	1.2	2.4	36.0	65.2	4.3	32.8	48.2	3.2	0.4	12.6	43.0

Element	B	W	Tl	S	Hg	Se	Te
	ppm	ppm	ppm	ppm	ppm	ppm	ppm
LDL	1	0.1	0.02	0.02	5	0.1	0.02
Number of samples	253	253	253	253	253	253	253
Values < LDL	1	178	213	127	143	143	168
Percentages < LDL	0.4	70.4	84.2	50.2	83.8	56.5	66.4

Accuracy of whole rock drill core Determinations:

To estimate the analytical accuracy of the drill core analysis, 19 standards were introduced into the sample batch.

This data set has sufficient quantity of replicate determinations of a given standard sample, 19 SY-4 standards. Relative standard deviation (RSD) provides a measure of precision. Values lower than the detection limits were replaced by half the detection value to make to statistics viable. The RSD is defined by the following equation:

RSD = s/x

where:
RSD = relative standard deviation
s = standard deviation
x = mean of replicate determinations

RSD values calculated for the $LiBO_2$ fusion - ICP-ES method are:

Element	SiO_2	Al_2O_3	Fe_2O_3	MgO	CaO	Na_2O	K_2O	TiO_2	P_2O_5	MnO	Cr_2O_3	Ba
	%	%	%	%	%	%	%	%	%	%	%	ppm
RSD	0.66	0.68	1.01	1.68	0.62	3.34	4.36	1.15	16.27	3.12	29.42	3.01

Element	Ni	Sc
	ppm	ppm
RSD	42.14	13.18

RSD values calculated for the $LiBO_2$ fusion - ICP-MS method are:

Element	Co	Cs	Ga	Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
RSD	11.01	11.06	3.32	4.82	4.05	4.33	13.92	3.01	9.98	23.49	22.56	42.42

Element	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
RSD	89.95	4.47	1.58	2.99	3.56	2.47	3.56	6.01	5.50	5.69	3.09

Element	Dy	Ho	Er	Tm	Yb	Lu
	ppm	ppm	ppm	ppm	ppm	ppm
RSD	3.69	3.86	4.51	4.32	5.10	4.50

RSD values calculated for the aqua regia digestion ICP-MS method are:

Element	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
RSD	8.36	5.50	5.05	4.47	24.84	10.42	3.84	3.20	2.79	34.44	25.93	64.06

Element	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba
	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	ppm
RSD	7.74	3.17	19.82	43.65	0.00	38.24	2.47	4.36	6.88	6.57	5.36	6.16

Element	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te
	%	ppm	%	%	%	ppm	ppm	ppm	%	ppm	ppm	ppm
RSD	4.66	18.29	2.42	3.79	4.49	0.00	34.49	6.58	83.13	21.79	56.22	45.63

Element	Ga	Li
	ppm	ppm
RSD	3.93	5.14

Whole rock drill core Duplicate Pairs:

The batch of whole rock drill core samples submitted for $LiBO_2$ fusion - ICP-ES, $LiBO_2$ fusion - ICP-MS, and aqua regia digestion ICP-MS analyses included 13 blind laboratory duplicate pairs created by splitting drill core samples. The relative percentage difference (RPD) calculated for the analytical results of the duplicate pairs represents a measure of precision (cf. Ziegler and Combs, 1997; Zimmerman et el., 2001) and is summarized below. The RPD is defined by the following equation:

$$RPD = 100 \times | C_1 - C_2 | / C_x$$

where:
RPD = relative percentage difference
$| C_1 - C_2 |$ = absolute value of the difference between the two concentrations
C_x = mean of the two results

For most elements, the RPD values are generally less than 20%. Results for Na_2O, P_2O_5, MnO, Cr_2O_3, Ni (G4A), Sc (G4A), Co (G4B), Cs, Sn, Ta, V (G4B, G1F), W (G4B, G1F), Tm, As, Au, Cd, Bi, V, Mg, Ti, W, Tl, S, Hg and Se laboratory duplicate pairs are not included below as the concentrations of these elements in most samples are below lower detection limits.

Laboratory duplicate pair average RPD values	Elements
≤5%	SiO_2, Al_2O_3, Pr, La (G4B), Th (G1F), Ce
>5% and ≤10%	Ca, K_2O, Sr (G4B, G1F), Nd, La (G1F), U (G1F), TiO_2, Eu, Sm, Fe_2O_3, Ba (G1F), Ga (G1F), Gd, Hf, Cr, Na, Zr, Sr, MgO, K, Fe, Ag, Nb, Th (G4B), Ga (G4B)
>10% and ≤20%	Cu, Mo, Al, U (G4B), Yb, Rb, Tb, B, Ni (G1F), P, Dy, Pb, Co (G1F), CaO, Sc (G1F), Sb, Y, Er, Ho, Li, Lu, Ba (G4A), Mn
>20% and ≤50%	Zn

Whole Rock geochemical element plots:

The eighty one element cross sectional plots have the sample locations and representative analytical values plotted by bubble plots. All the elements were first plotted using a quantile break (default computer setting) to see general patterns, and then the present bubble values were determined by percentiles. The uranium related elements (U, Ni, As, B, P, Mo, Co, Th, Al, Ca, CaO, Au, Li, Mg, MgO, K, and Va) use nine percentile values. These show the break down of the anomalous values in more detail at the top percentiles. The formation (Al_2O_3, Ce, Eu, Ga, K_2O, La, MgO, Ni, Nd, Pr, Rb, Sm, Ta, Th, and TiO) and random related elements (40 remaining) use eight percentile values. These show a more even representation of the values. Strontium (G4B and G1F methods) values were plotted using the uranium related element method but in the opposite order due to its reverse relationship to uranium (0.1-0th percentile, 1-0.1st percentile, 2-1st percentile, etc.).

Uranium related elements:
99.9-100th percentile
98-99.9th percentile
95-98th percentile
90-95th percentile
80-90th percentile
70-80th percentile
60-70th percentile
50-60th percentile
<50th percentile

Formation related and random elements:
95-100th percentile
90-95th percentile
80-90th percentile
70-80th percentile
60-70th percentile
40-60th percentile
20-40th percentile
<20th percentile

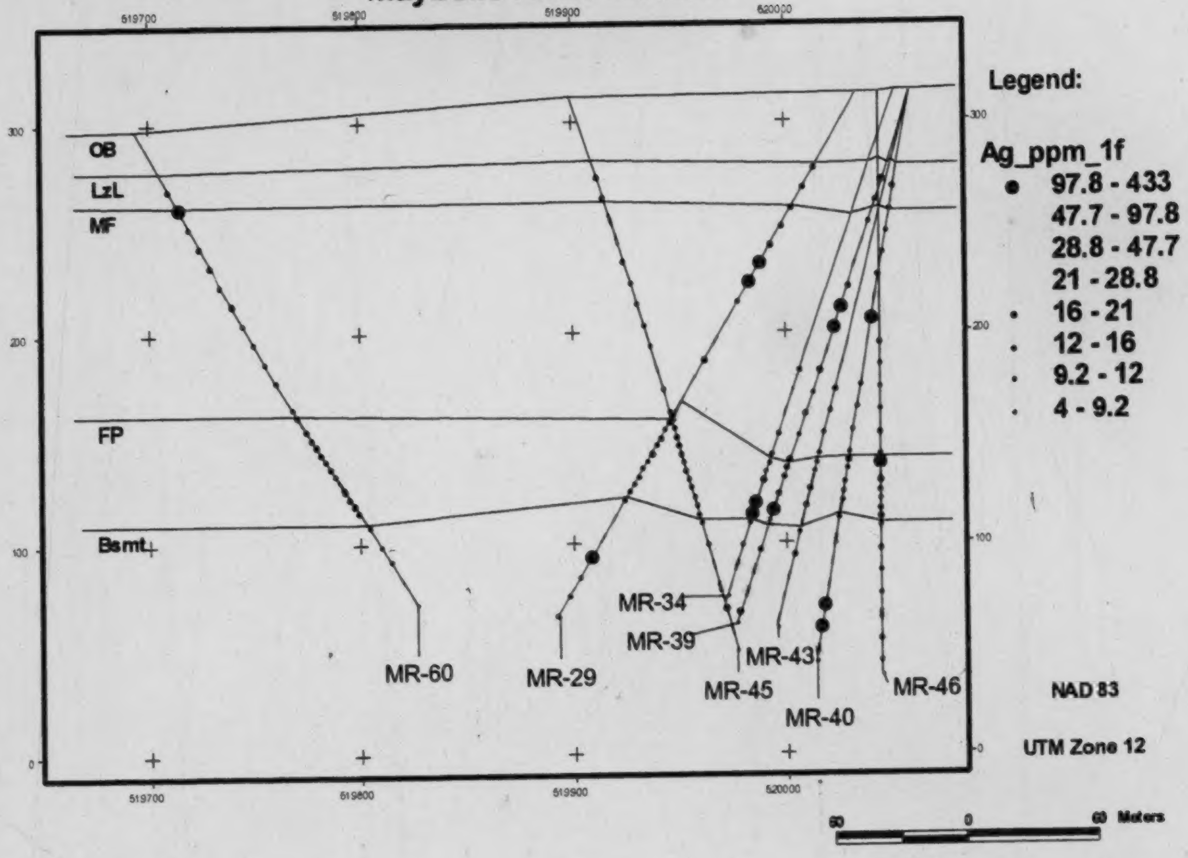
REFERENCES:

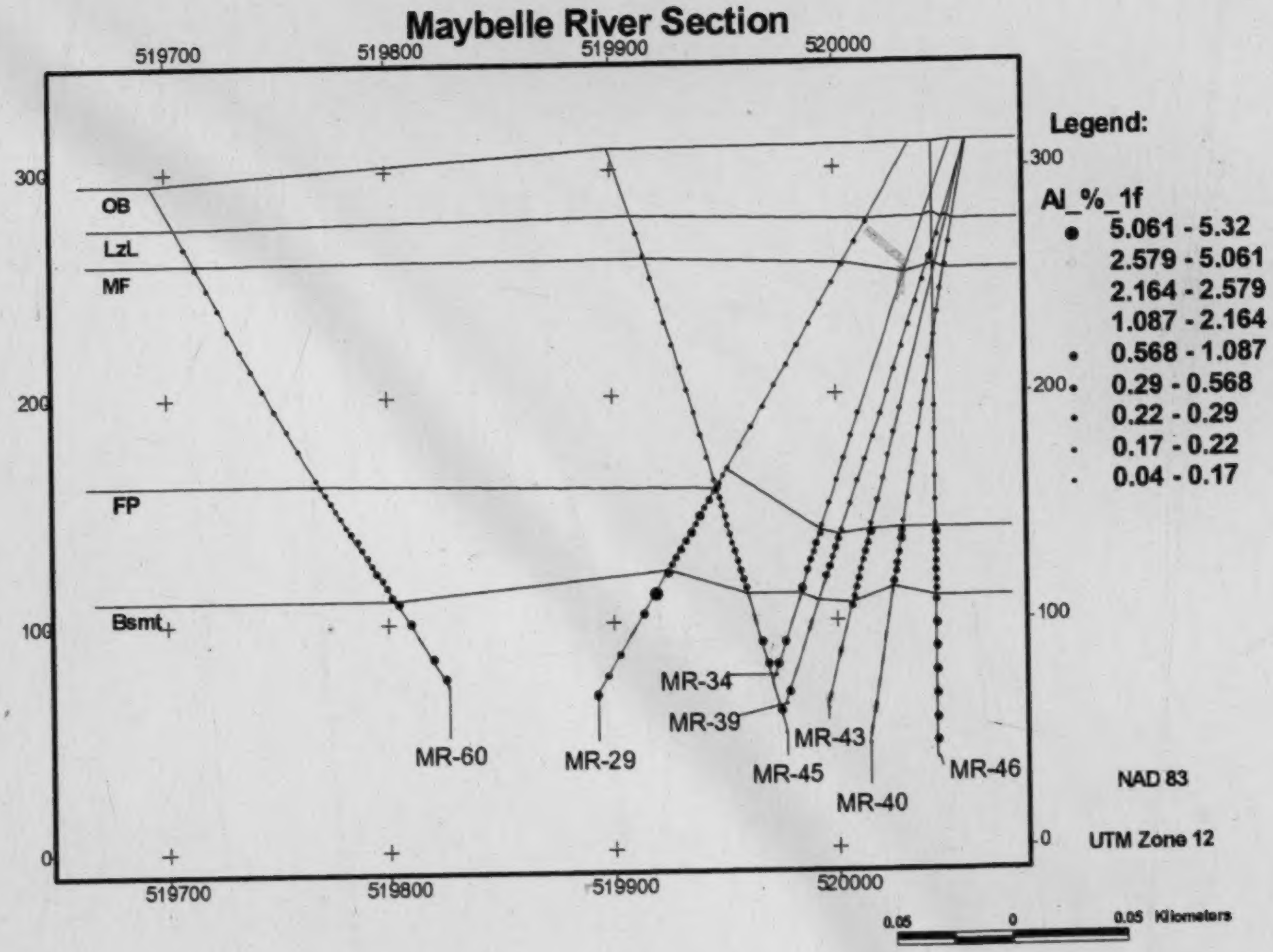
Ziegler, A.C., Combs, L.J., 1997, Baseline Data-Collection and Quality-Control Protocols and Procedures for the *Equus* Beds Ground-Water Recharge Demonstration Project Near Wichita, Kansas, 1995-96: U.S. Geological Survey, Open-File Report 97-235, 19p.

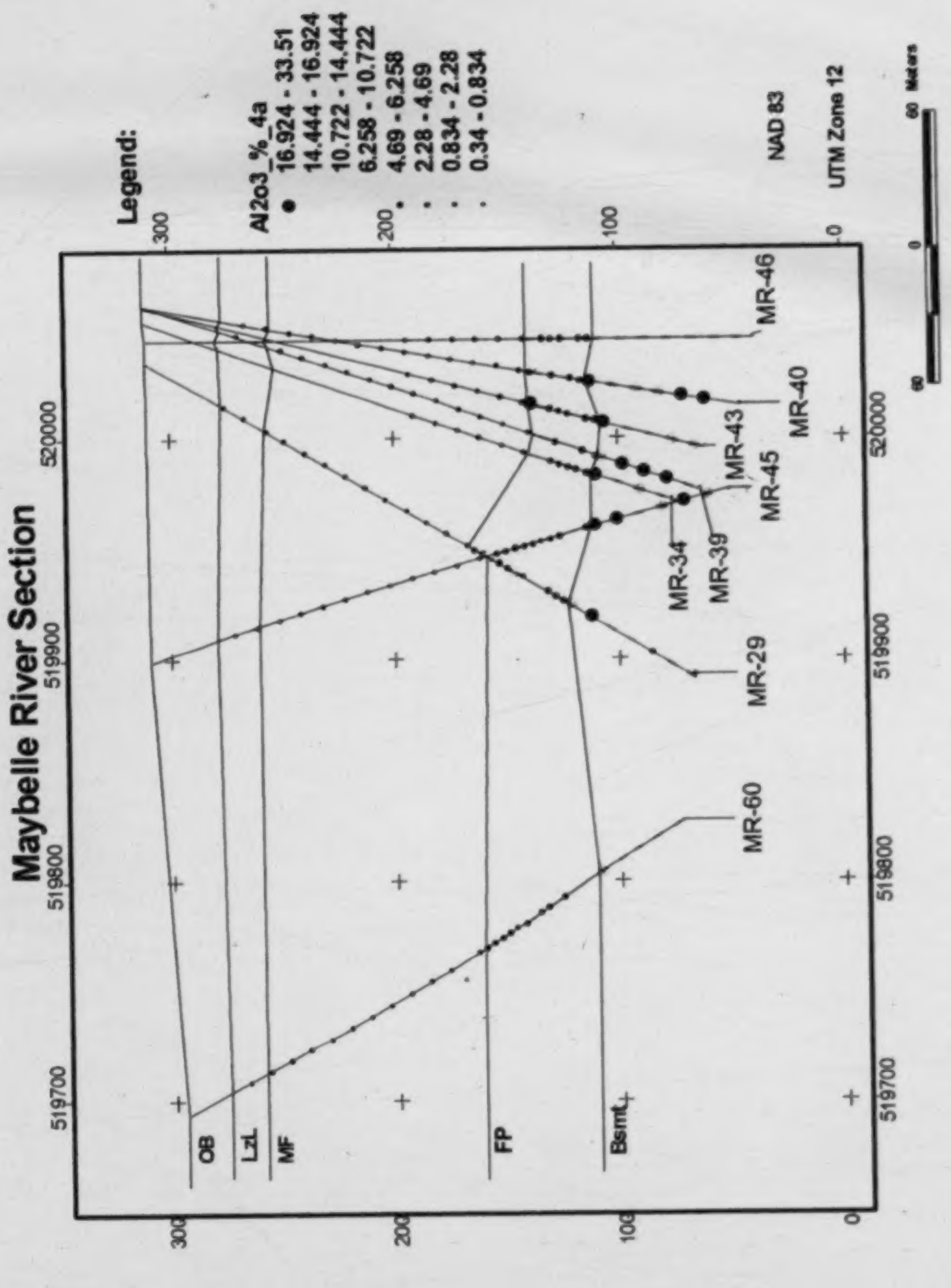
Zimmerman, L.R., Strahan, A.P., Thurman, E.M., 2001, Methods of Analysis and Quality-Assurance Practices by the U.S. Geological Survey Organic Geochemistry Research Group—Determination of Four Selected Mosquito Insecticides and a Synergist in Water Using Liquid-Liquid Extraction and Gas Chromatography/Mass Spectrometry: U.S. Geological Survey, Open-File Report 01-273, 15p.

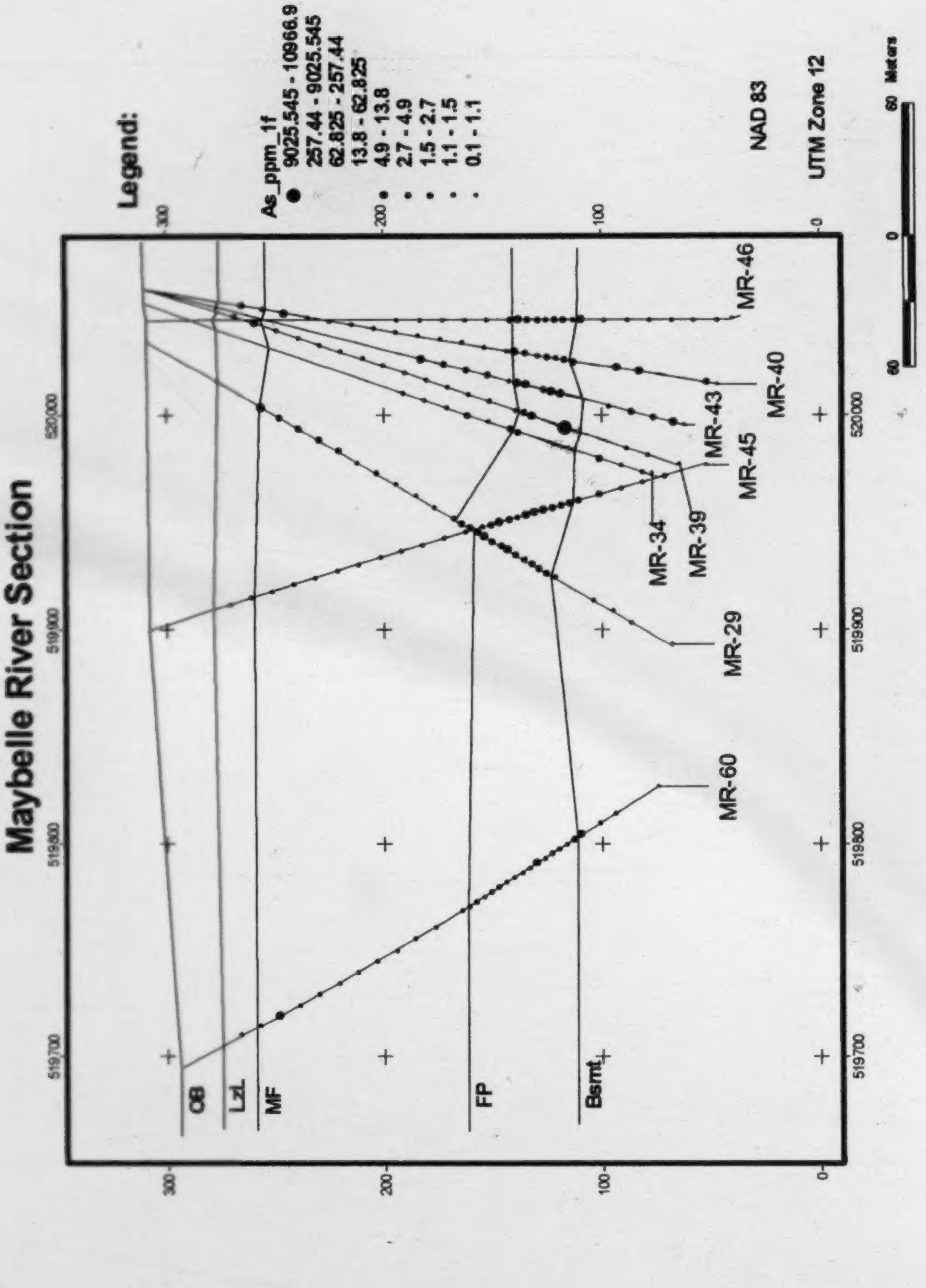
APPENDIX 8 – Whole rock geochemical element plots

Maybelle River Section




Maybelle River Section
519700
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Al_%_1f
5.061 - 5.32
2.579 - 5.061
2.164 - 2.579
1.087 - 2.164
0.568 - 1.087
0.29 - 0.568
0.22 - 0.29
0.17 - 0.22
0.04 - 0.17
NAD 83
UTM Zone 12
0.05
0
0.05 Kilometers


Maybelle River Section
Legend:
Al2o3_%_4a
● 16.924 - 33.51
14.444 - 16.924
10.722 - 14.444
6.258 - 10.722
• 4.69 - 6.258
• 2.28 - 4.69
• 0.834 - 2.28
· 0.34 - 0.834
NAD 83
UTM Zone 12
60 0 60 Meters
519700
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46



Maybelle River Section

Legend:
As_ppm_1f
● 9025.545 - 10966.9
257.44 - 9025.545
62.825 - 257.44
13.8 - 62.825
• 4.9 - 13.8
• 2.7 - 4.9
• 1.5 - 2.7
• 1.1 - 1.5
· 0.1 - 1.1
NAD 83
UTM Zone 12
0
60
60 Meters
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
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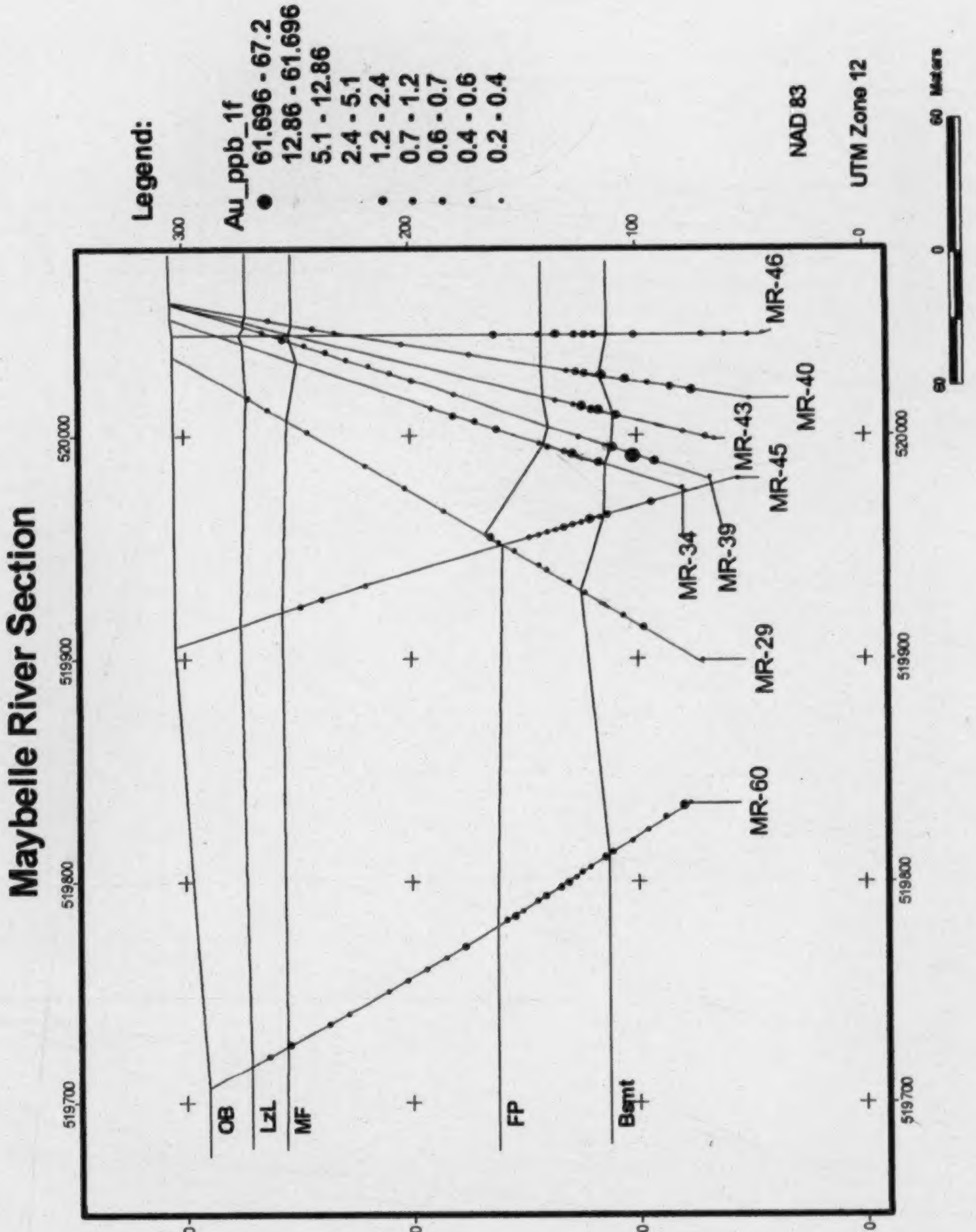
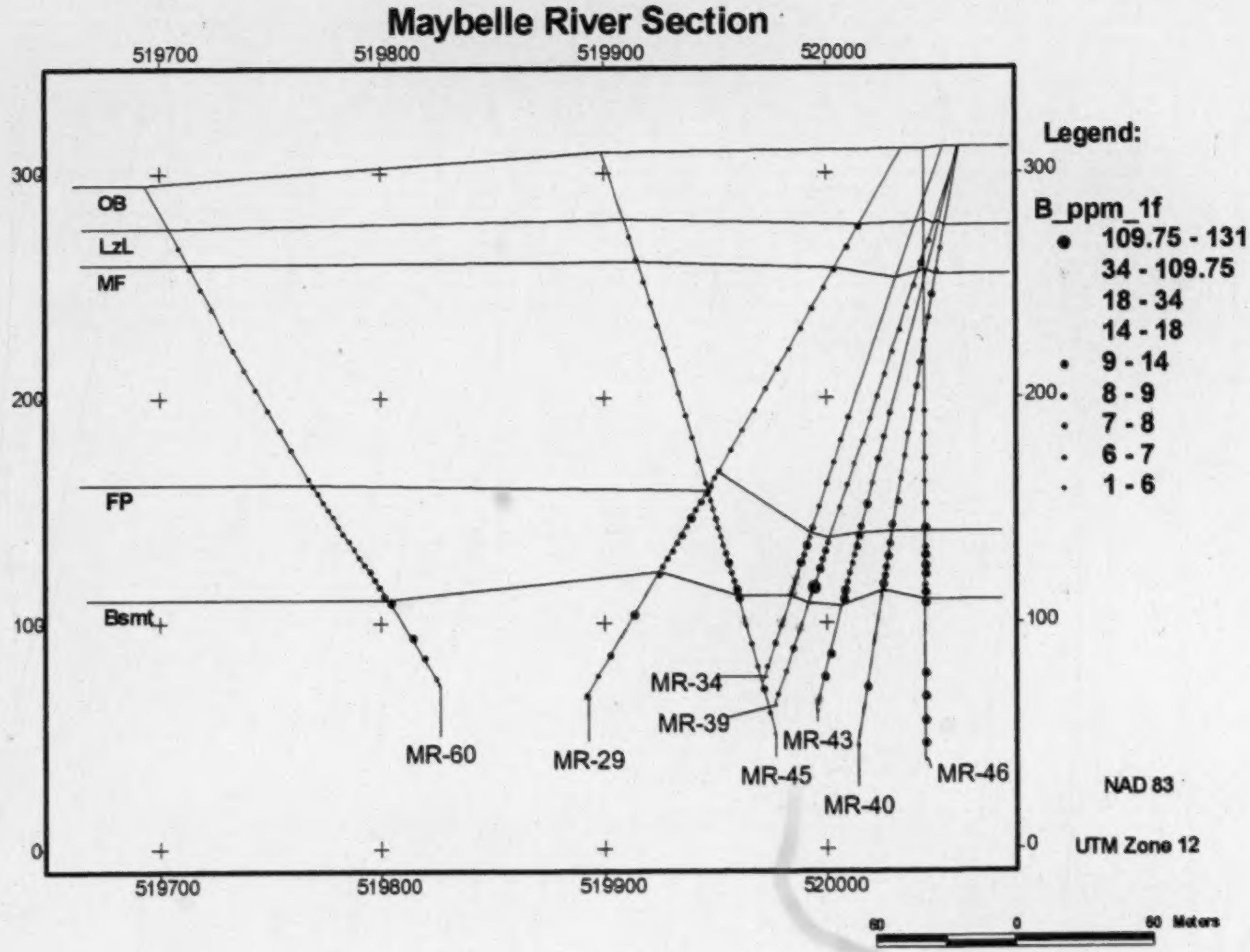
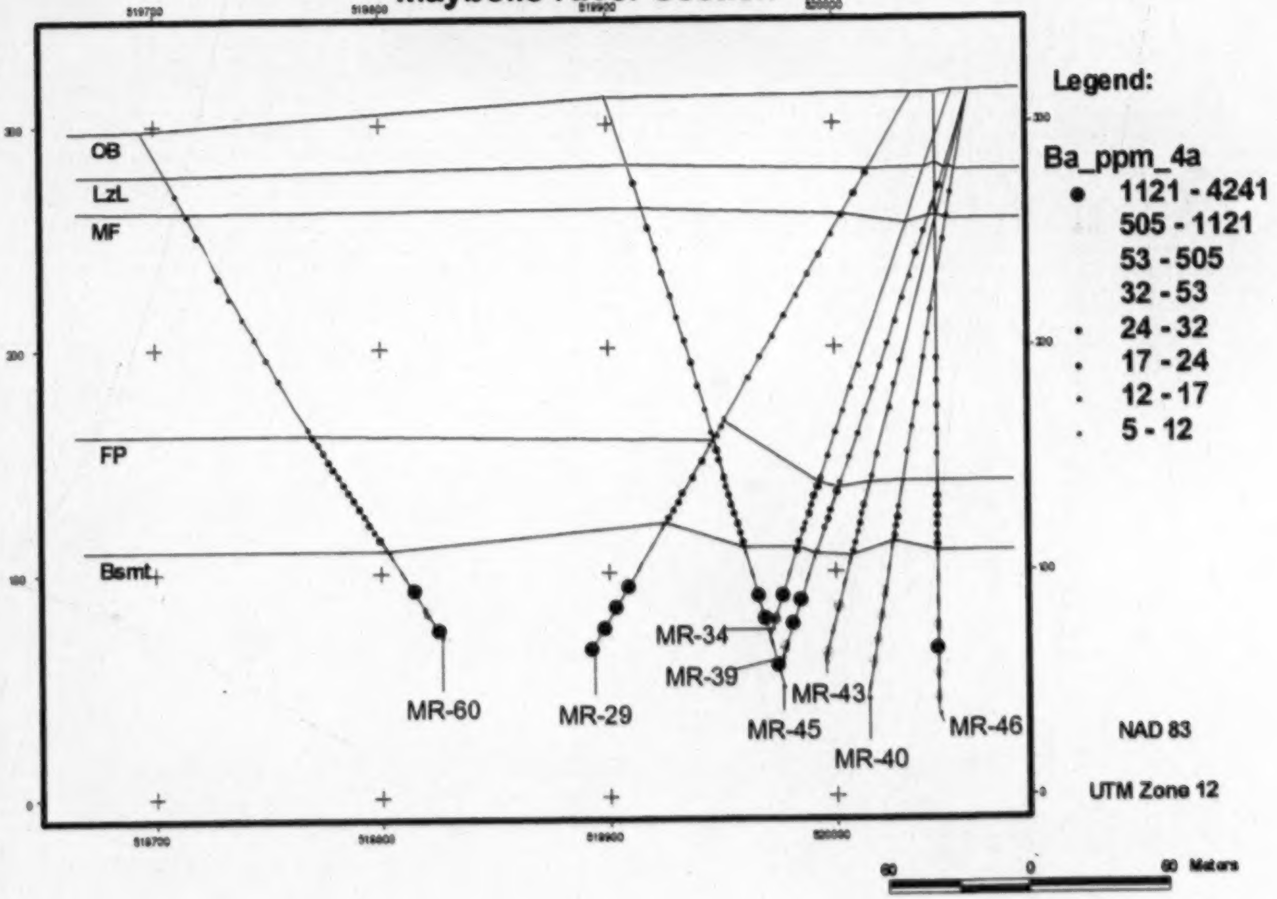
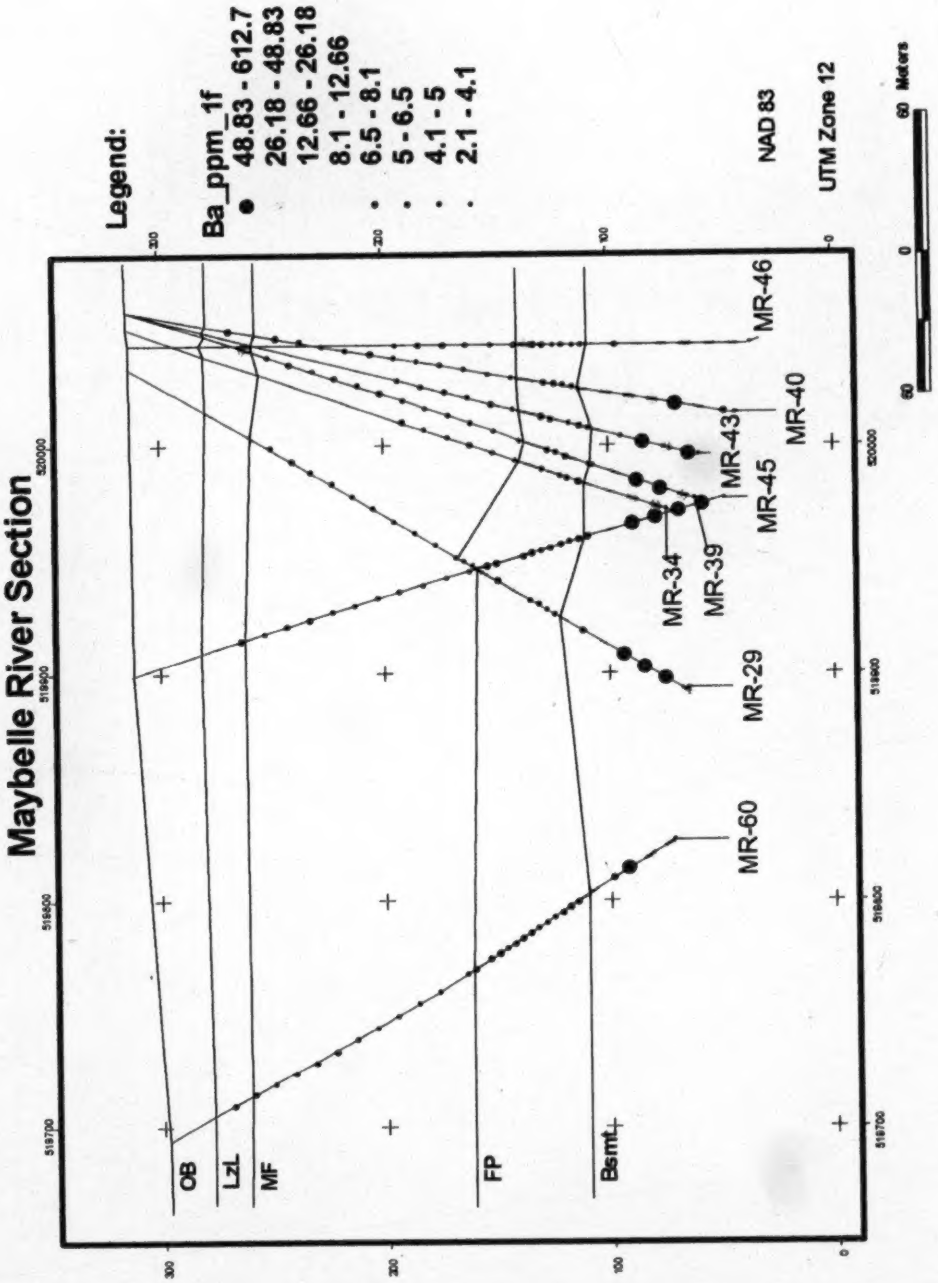
519800
519900
520000
300
200
100
0


Maybelle River Section
Legend:
Au_ppb_1f
● 61.696 - 67.2
12.86 - 61.696
5.1 - 12.86
2.4 - 5.1
1.2 - 2.4
0.7 - 1.2
0.6 - 0.7
0.4 - 0.6
0.2 - 0.4
NAD 83
UTM Zone 12
60
0
60 Meters
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
519700
519800
519900
520000
0
100
200
300


Maybelle River Section
519700
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
B_ppm_1f
● 109.75 - 131
34 - 109.75
18 - 34
14 - 18
• 9 - 14
• 8 - 9
· 7 - 8
· 6 - 7
· 1 - 6
NAD 83
UTM Zone 12
60
0
60 Meters

Maybelle River Section




Maybelle River Section
Legend:
Ba_ppm_1f
● 48.83 - 612.7
26.18 - 48.83
12.66 - 26.18
8.1 - 12.66
• 6.5 - 8.1
• 5 - 6.5
• 4.1 - 5
• 2.1 - 4.1
NAD 83
UTM Zone 12
60 Meters
0
60
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
519700
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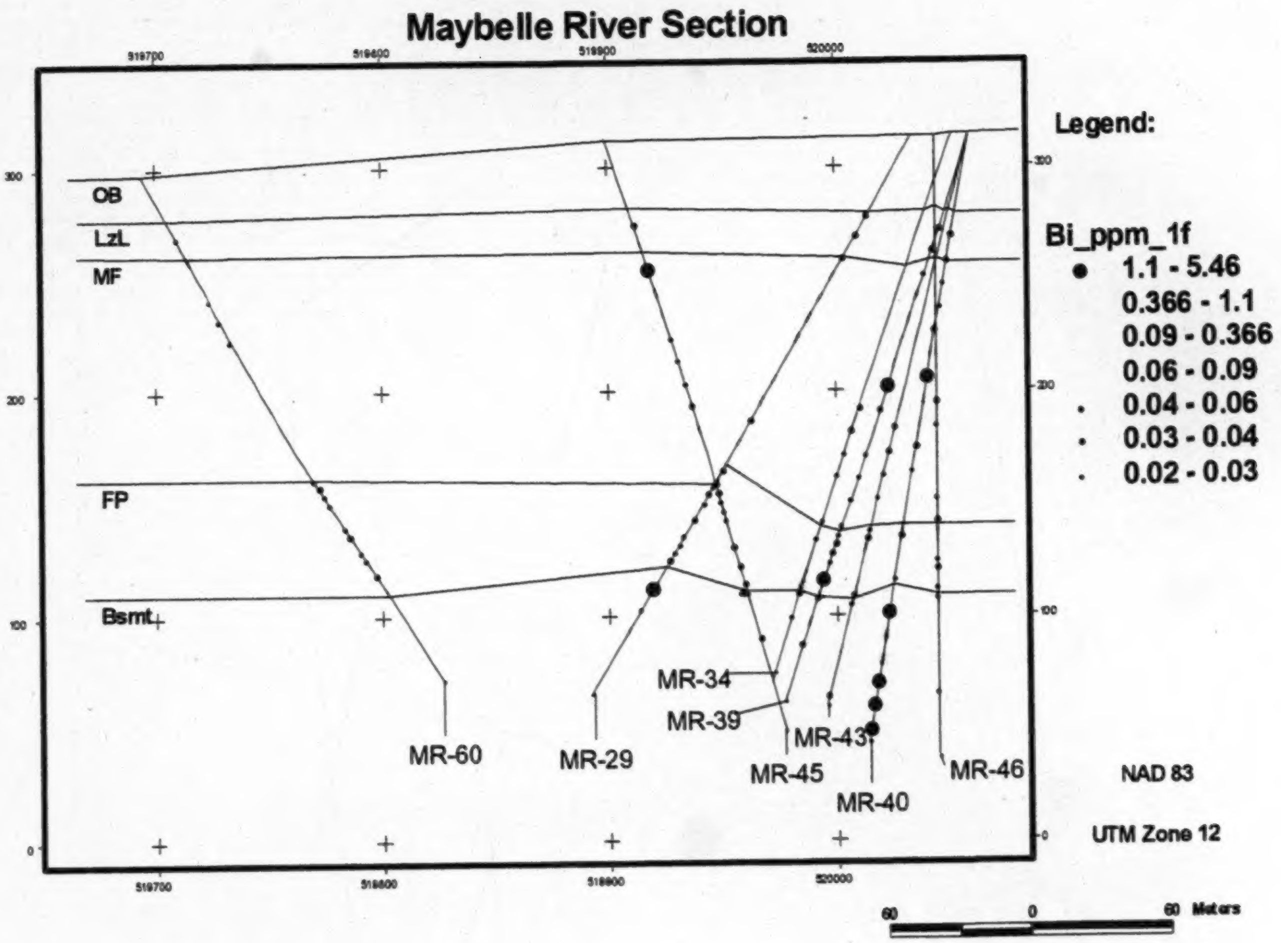
519900
520000
300
200
100
0


Maybelle River Section
519700
519800
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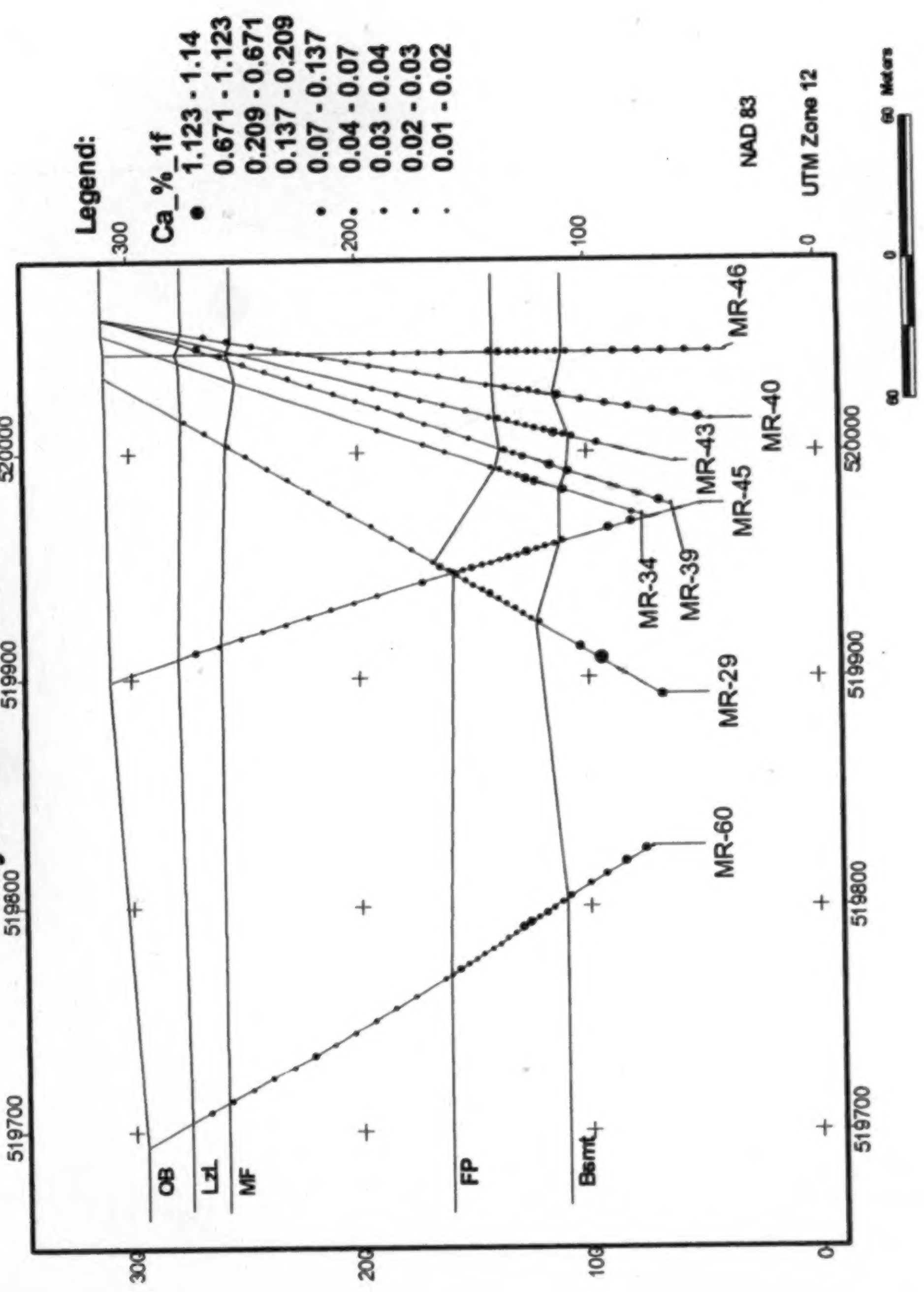
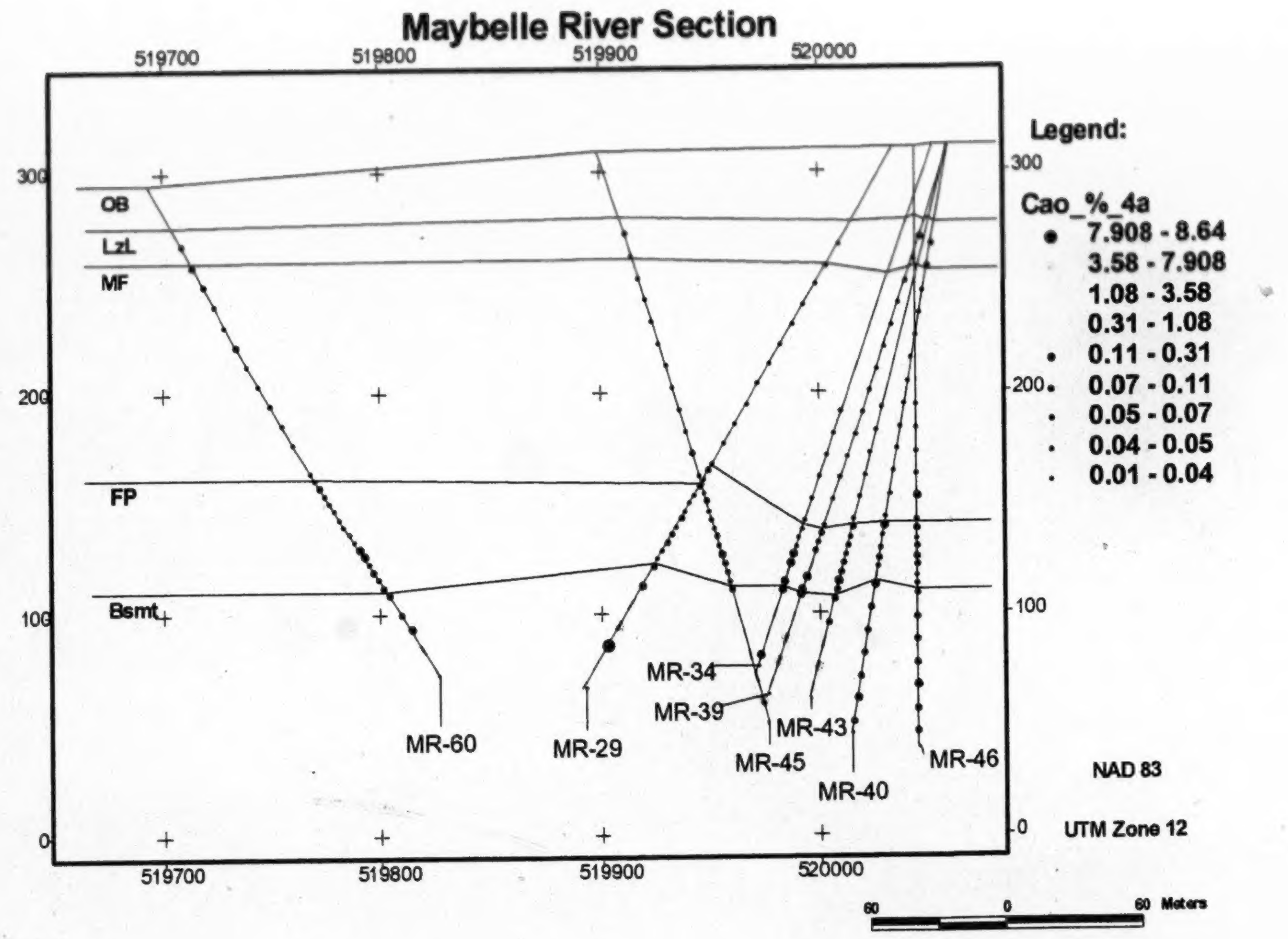
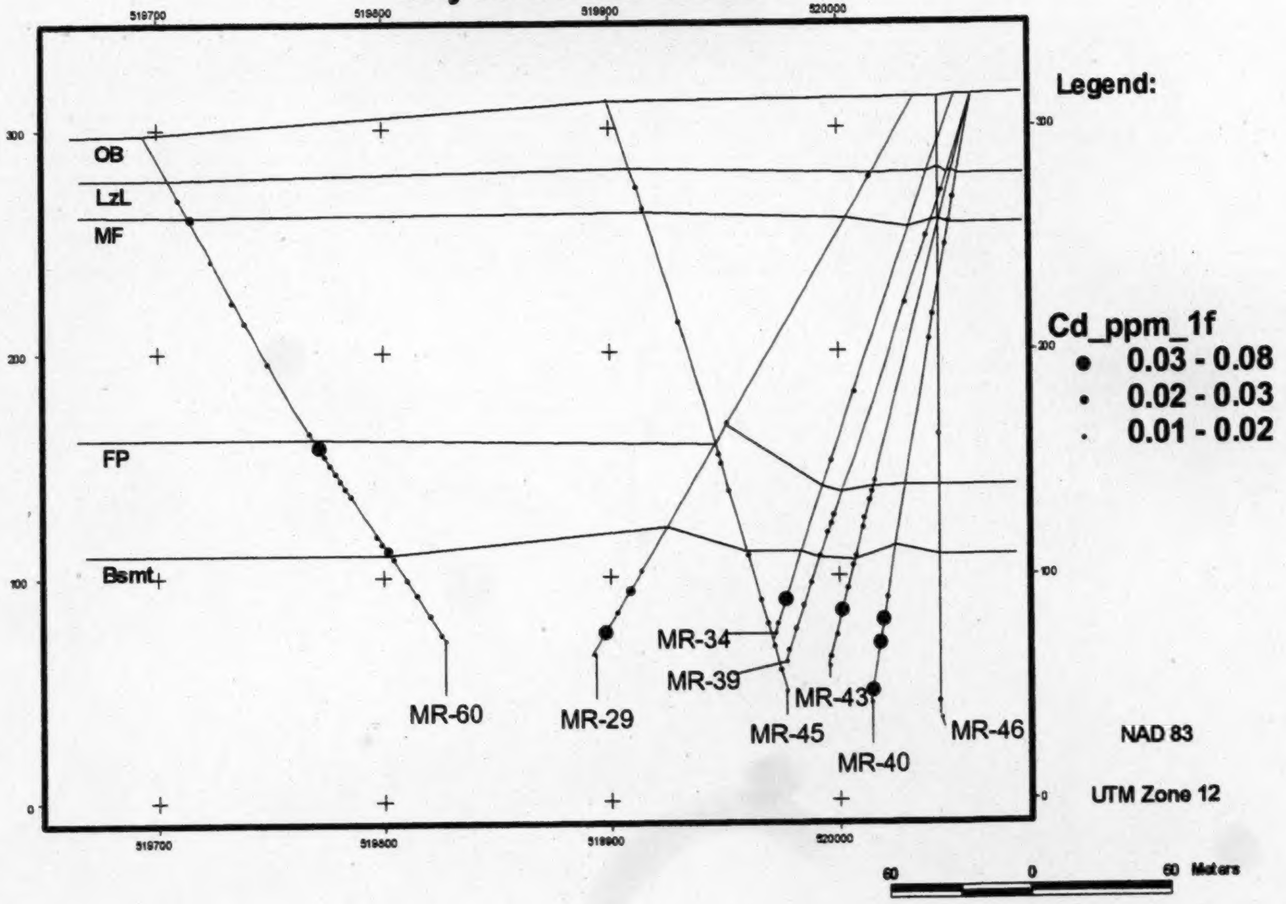
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Bi_ppm_1f
● 1.1 - 5.46
0.366 - 1.1
0.09 - 0.366
0.06 - 0.09
• 0.04 - 0.06
• 0.03 - 0.04
• 0.02 - 0.03
NAD 83
UTM Zone 12
60
0
60
Meters

Maybelle River Section

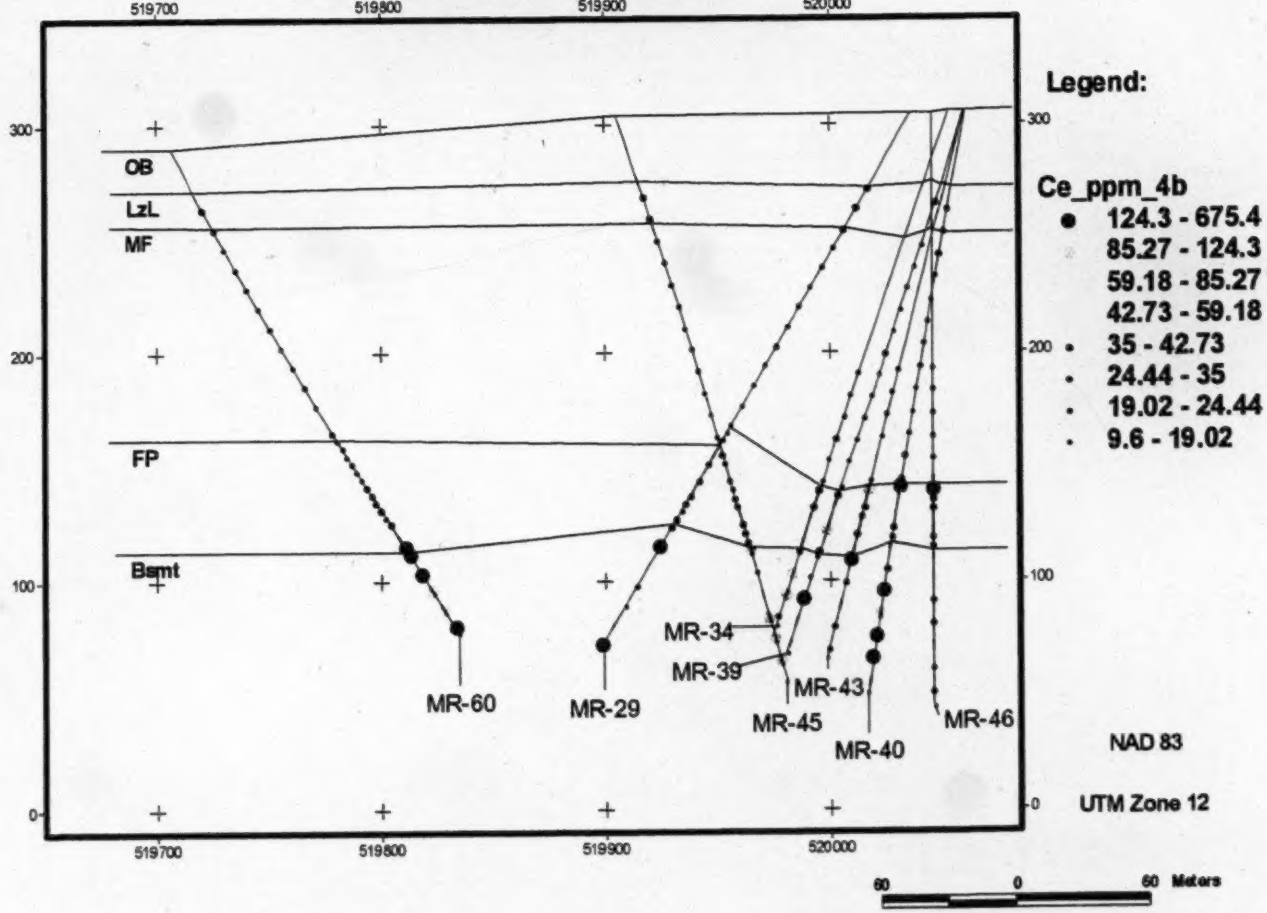



Maybelle River Section
519700
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Cao_%_4a
● 7.908 - 8.64
3.58 - 7.908
1.08 - 3.58
0.31 - 1.08
• 0.11 - 0.31
• 0.07 - 0.11
• 0.05 - 0.07
• 0.04 - 0.05
· 0.01 - 0.04
NAD 83
UTM Zone 12
60
0
60 Meters

Maybelle River Section



Maybelle River Section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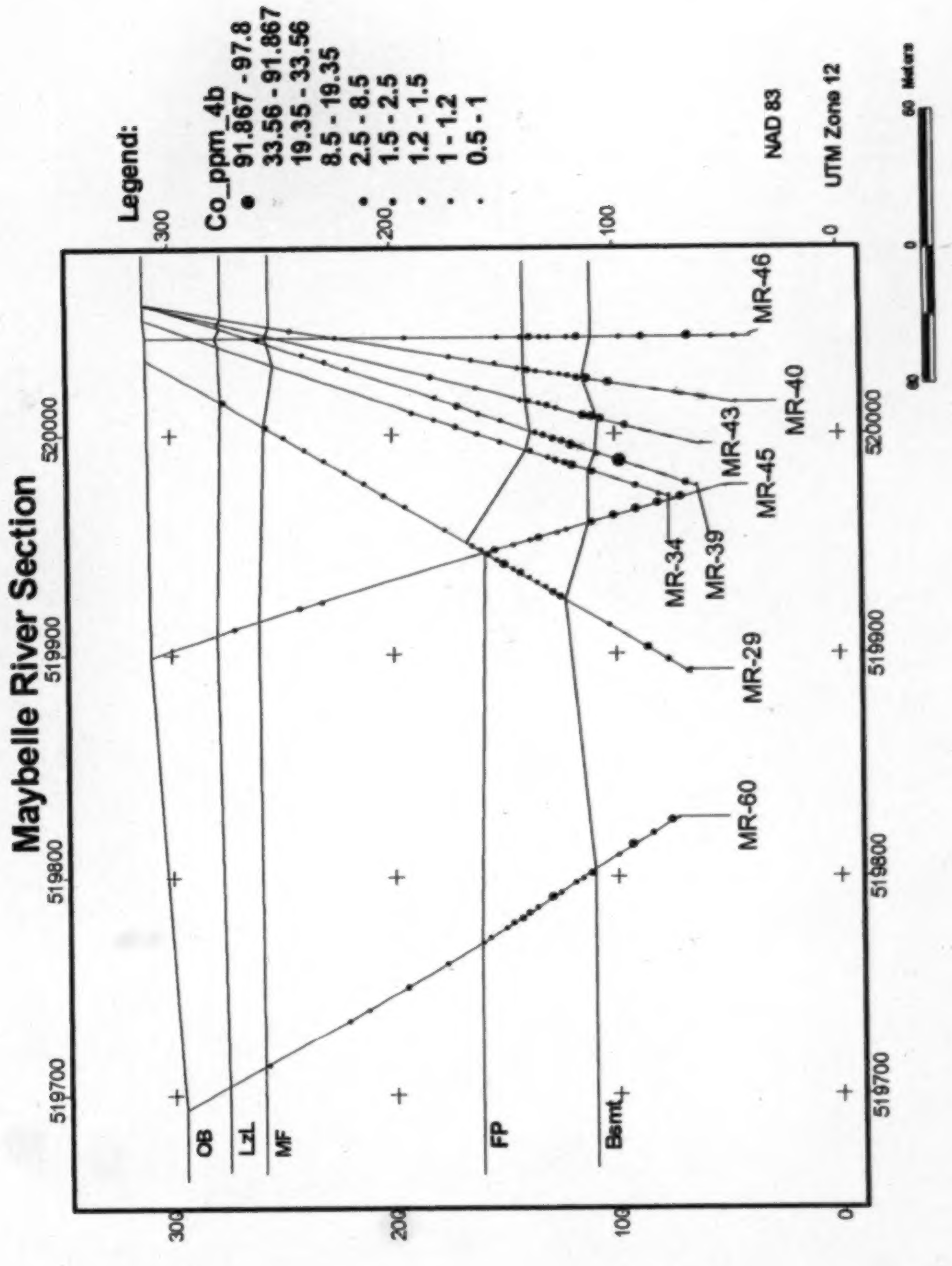
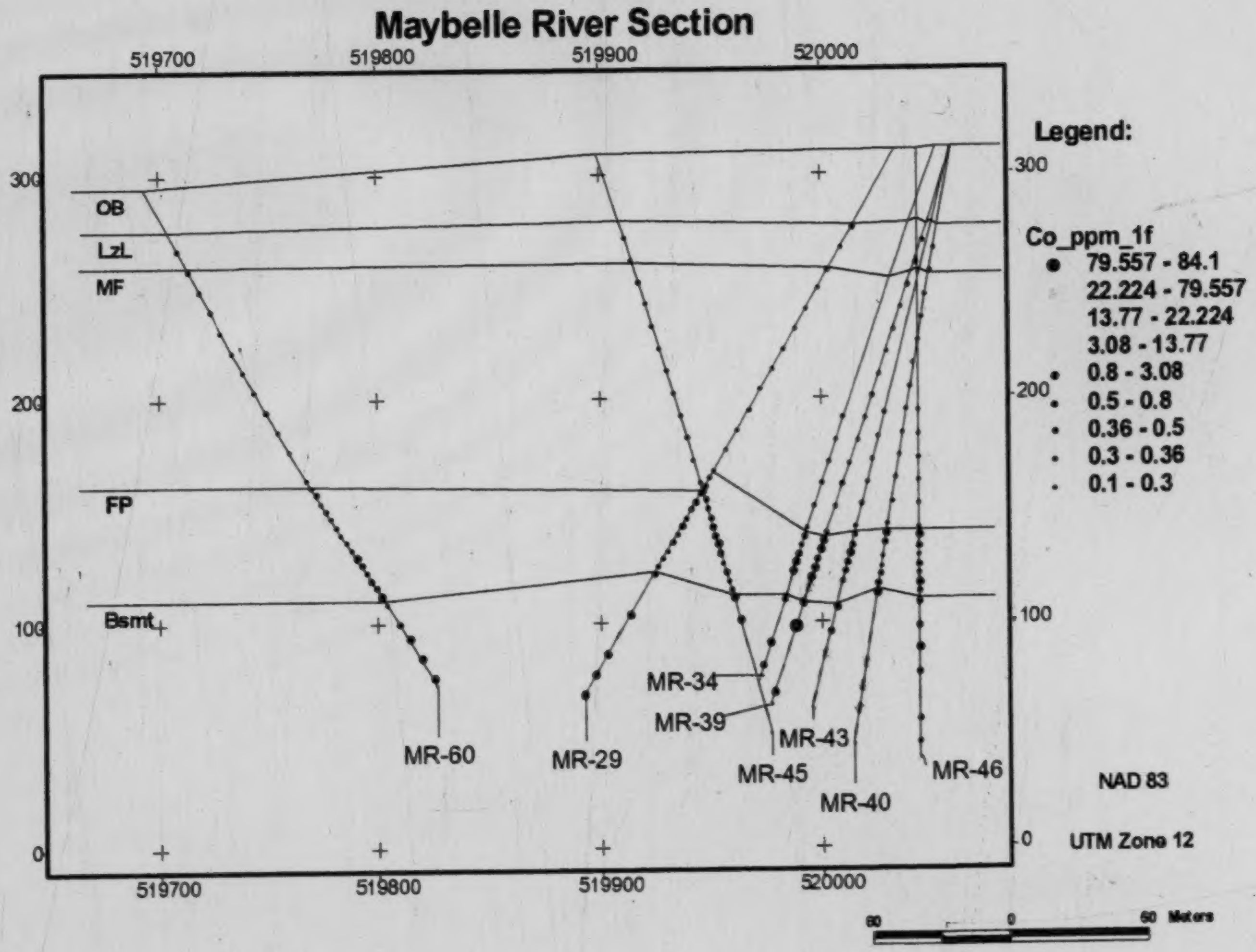
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Ce_ppm_4b
● 124.3 - 675.4
85.27 - 124.3
59.18 - 85.27
42.73 - 59.18
• 35 - 42.73
• 24.44 - 35
• 19.02 - 24.44
• 9.6 - 19.02
NAD 83
UTM Zone 12
60
0
60 Meters


Maybelle River Section
519700
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Co_ppm_4b
● 91.867 - 97.8
33.56 - 91.867
19.35 - 33.56
8.5 - 19.35
• 2.5 - 8.5
• 1.5 - 2.5
• 1.2 - 1.5
• 1 - 1.2
• 0.5 - 1
NAD 83
UTM Zone 12
50
0
50 Meters


Maybelle River Section
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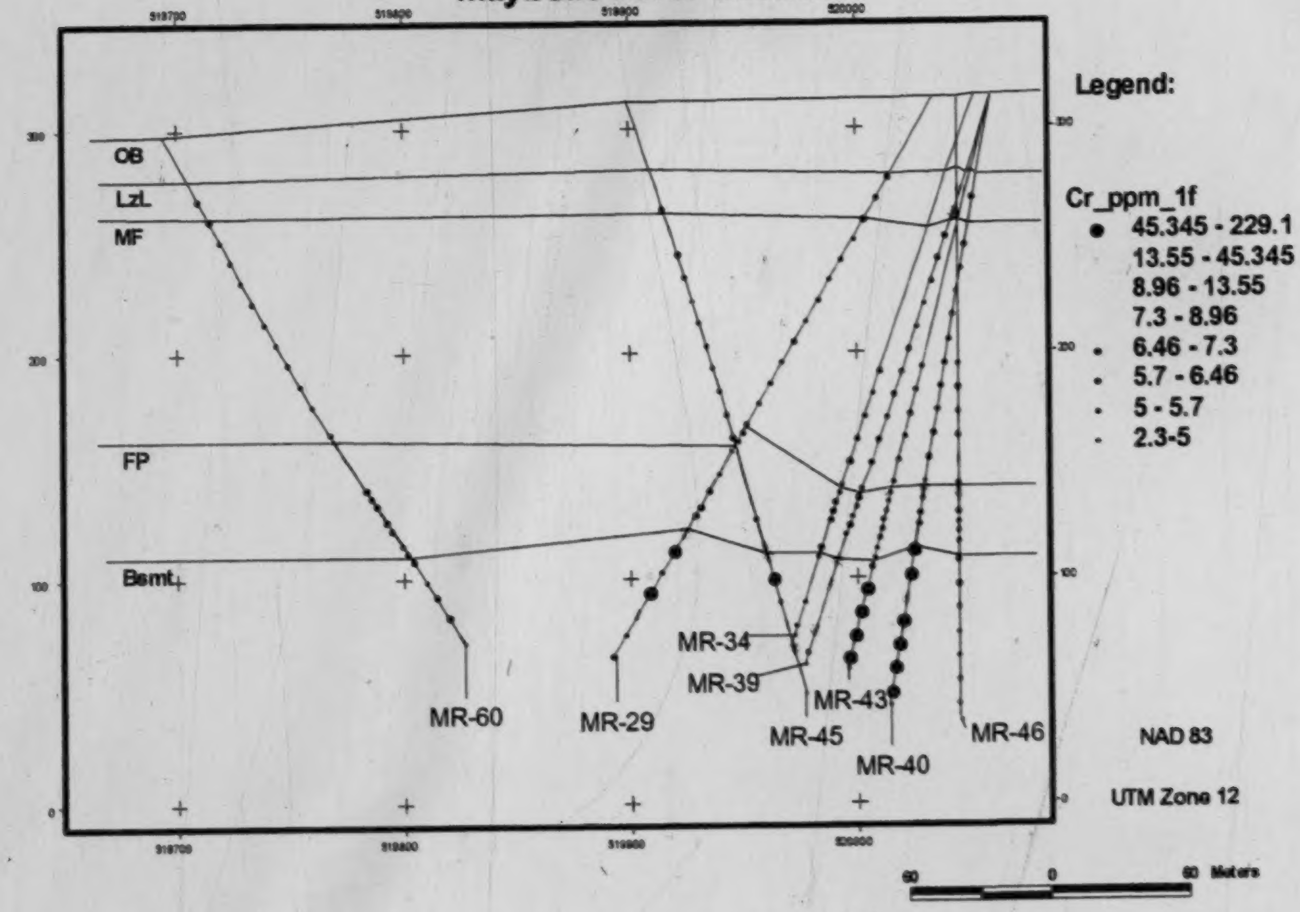
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Co_ppm_1f
● 79.557 - 84.1
22.224 - 79.557
13.77 - 22.224
3.08 - 13.77
• 0.8 - 3.08
• 0.5 - 0.8
• 0.36 - 0.5
• 0.3 - 0.36
• 0.1 - 0.3
NAD 83
UTM Zone 12
60
0
60 Meters

Maybelle River Section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520000
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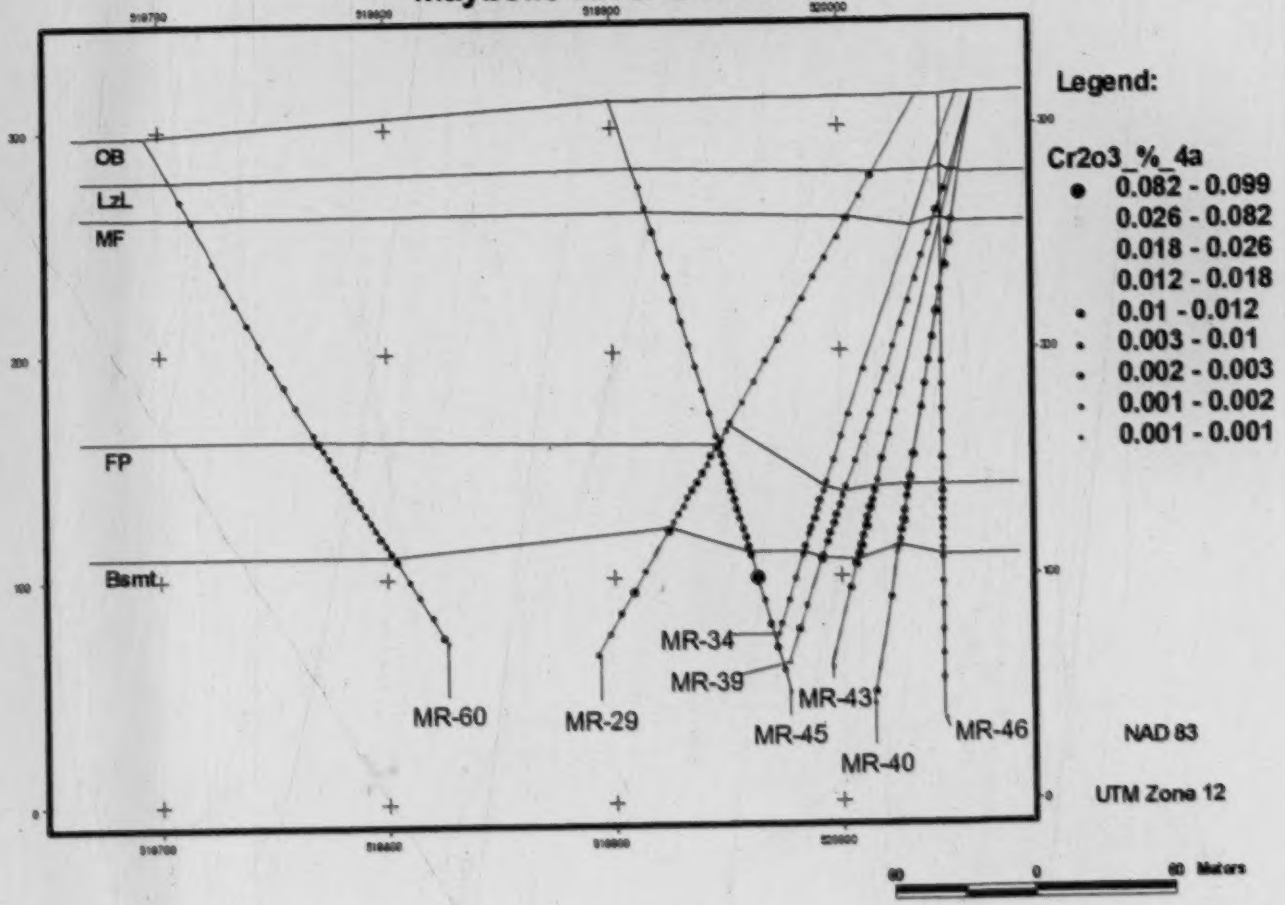
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Cr_ppm_1f
● 45.345 - 229.1
13.55 - 45.345
8.96 - 13.55
7.3 - 8.96
• 6.46 - 7.3
• 5.7 - 6.46
• 5 - 5.7
· 2.3-5
NAD 83
UTM Zone 12
60
0
60 Meters

Maybelle River Section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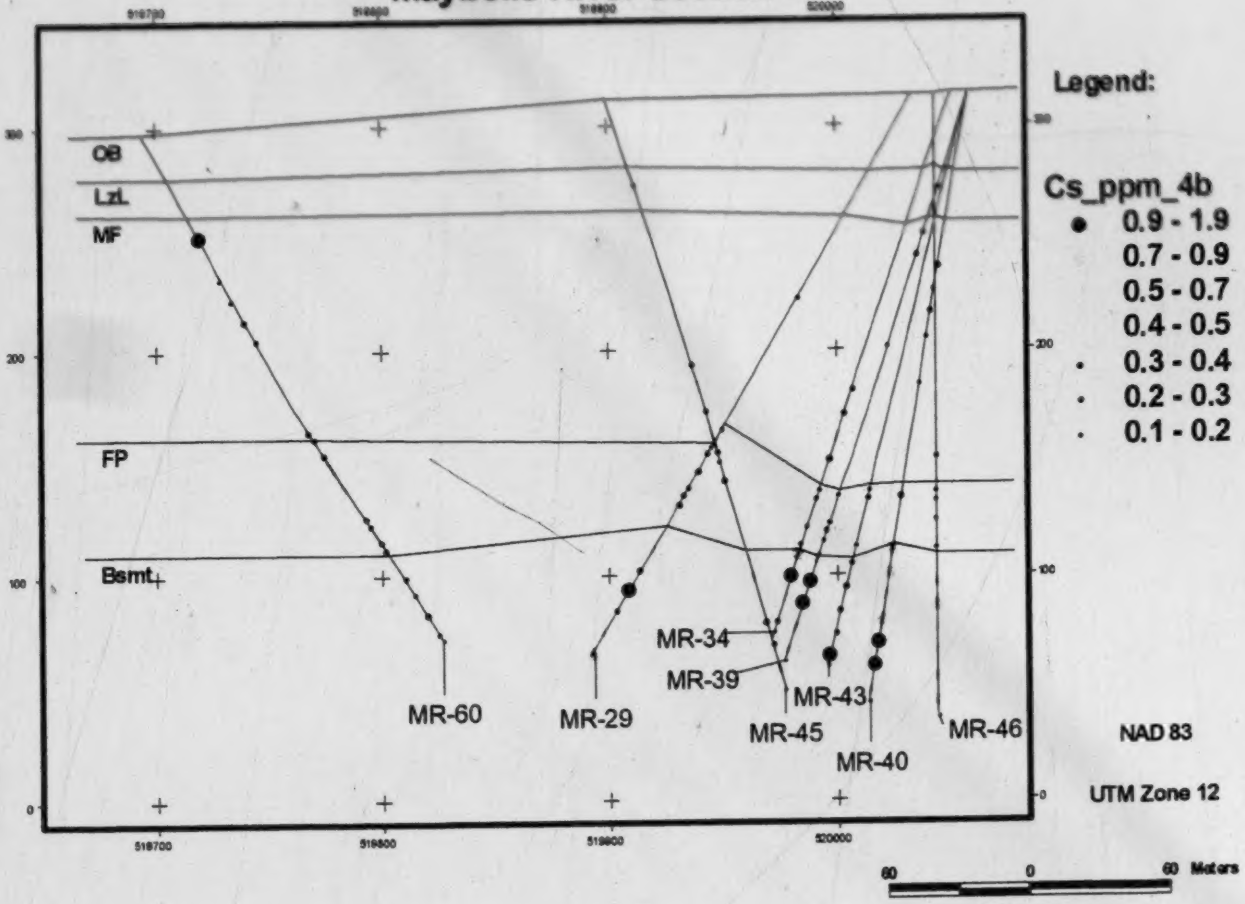
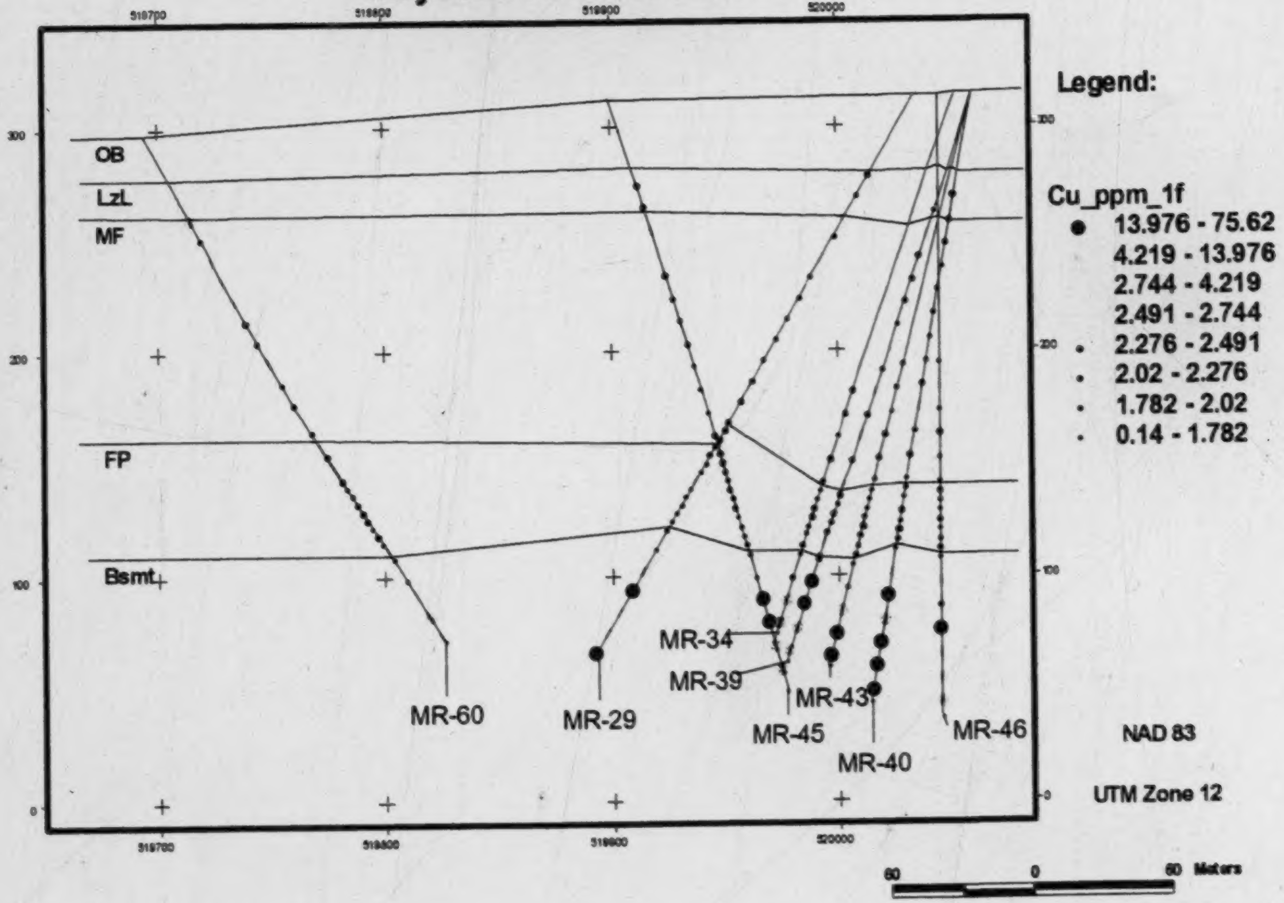
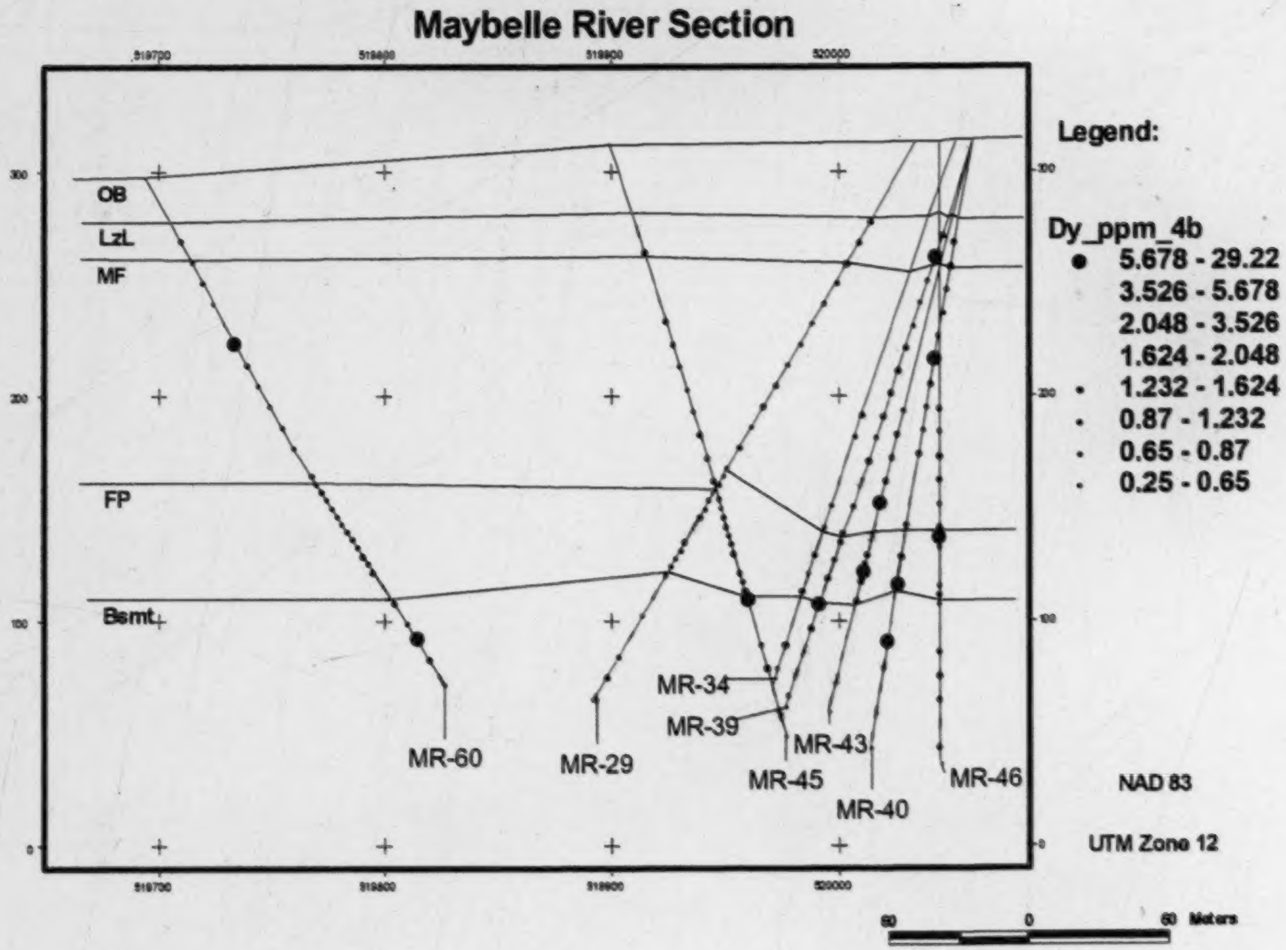
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Cr2o3_%_4a
● 0.082 - 0.099
0.026 - 0.082
0.018 - 0.026
0.012 - 0.018
• 0.01 - 0.012
• 0.003 - 0.01
• 0.002 - 0.003
• 0.001 - 0.002
• 0.001 - 0.001
NAD 83
UTM Zone 12
60
0
60
Meters

Maybelle River Section



Maybelle River Section


519700
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Cu_ppm_1f
● 13.976 - 75.62
4.219 - 13.976
2.744 - 4.219
2.491 - 2.744
• 2.276 - 2.491
• 2.02 - 2.276
• 1.782 - 2.02
• 0.14 - 1.782
NAD 83
UTM Zone 12
60
0
60 Meters


Maybelle River Section
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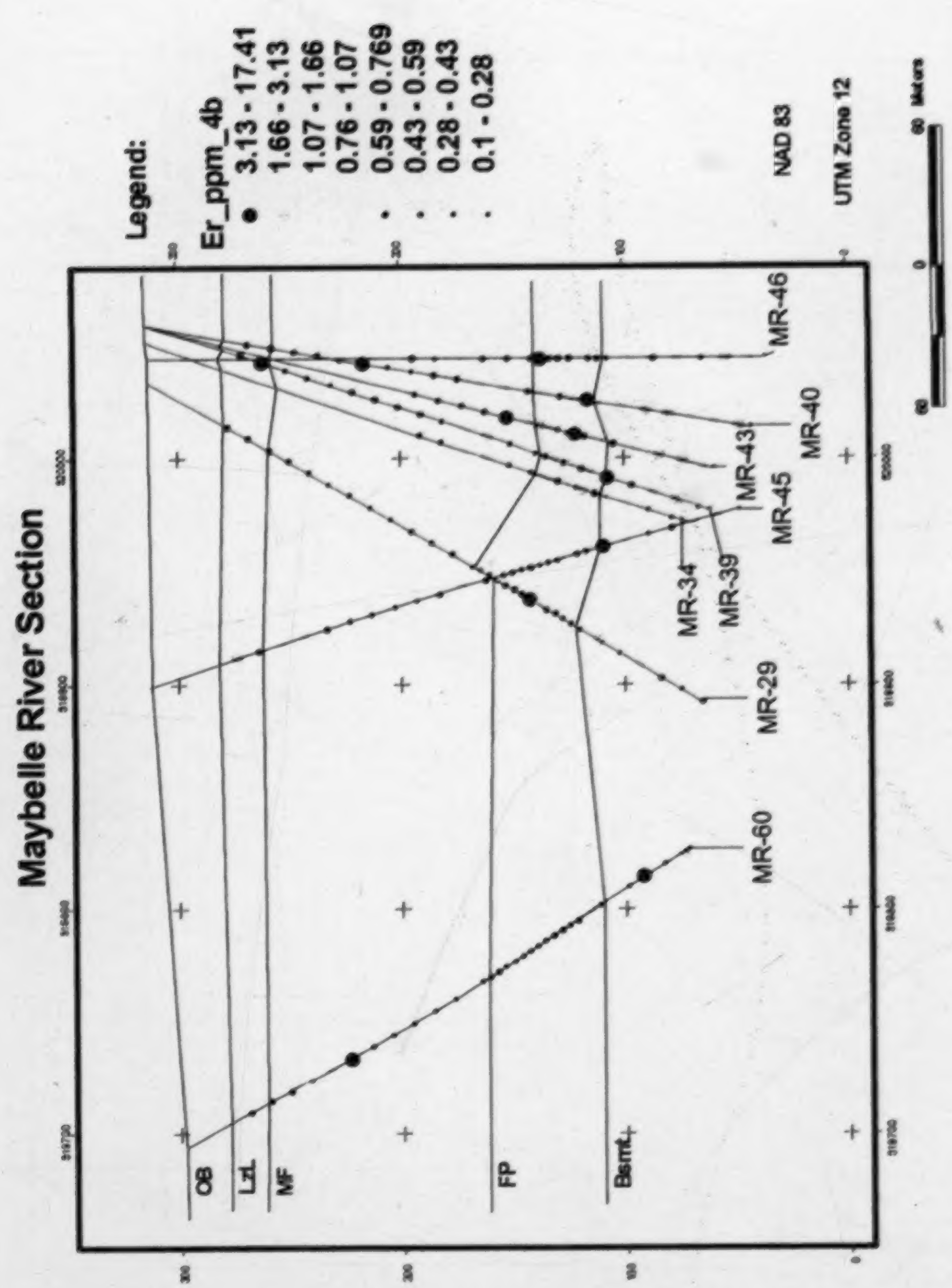
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Dy_ppm_4b
● 5.678 - 29.22
3.526 - 5.678
2.048 - 3.526
1.624 - 2.048
• 1.232 - 1.624
• 0.87 - 1.232
• 0.65 - 0.87
• 0.25 - 0.65
NAD 83
UTM Zone 12
60
0
60 Meters


Maybelle River Section
Legend:
Er_ppm_4b
● 3.13 - 17.41
1.66 - 3.13
1.07 - 1.66
0.76 - 1.07
. 0.59 - 0.769
. 0.43 - 0.59
. 0.28 - 0.43
. 0.1 - 0.28
NAD 83
UTM Zone 12
Meters
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
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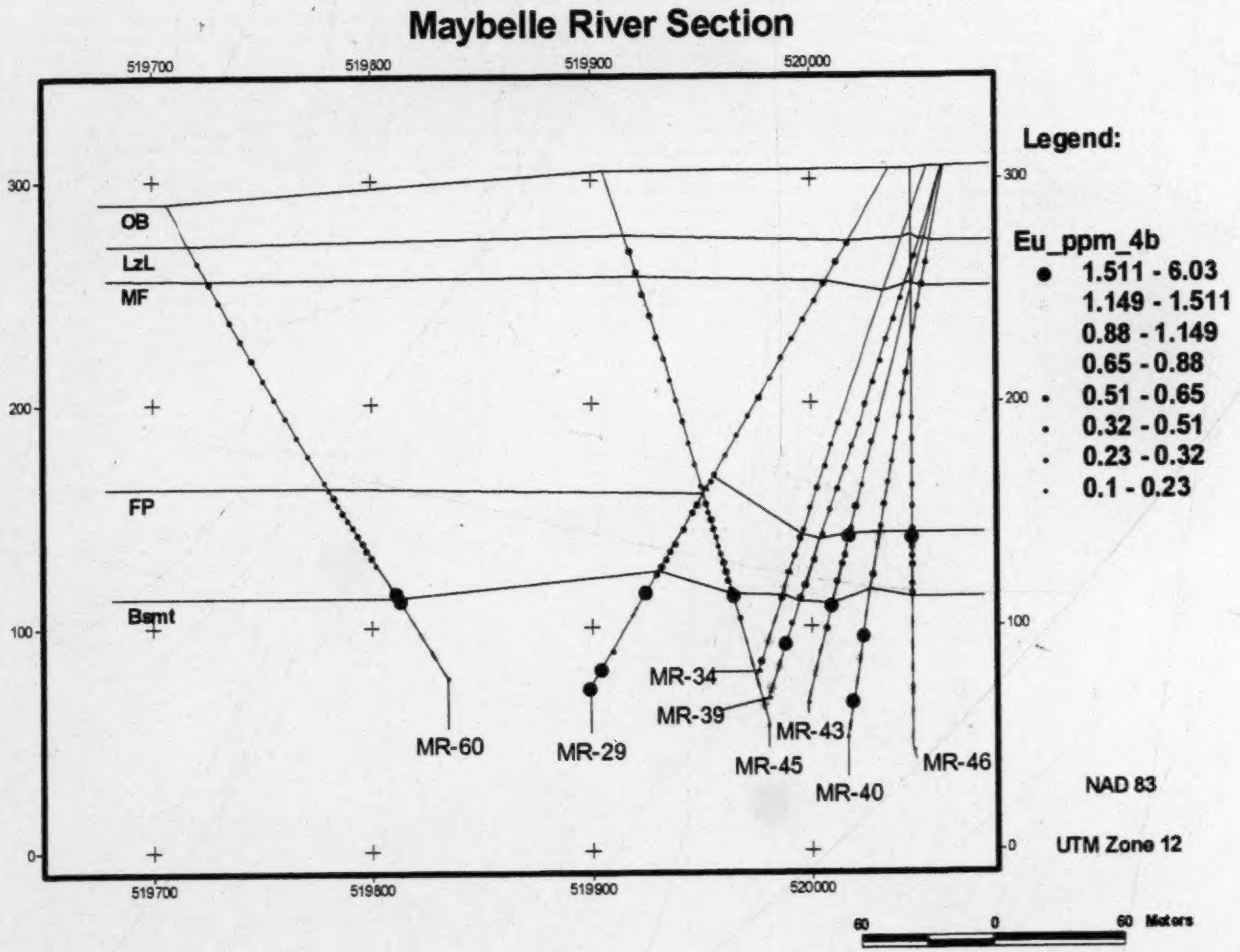
MR-46
300
200
100
0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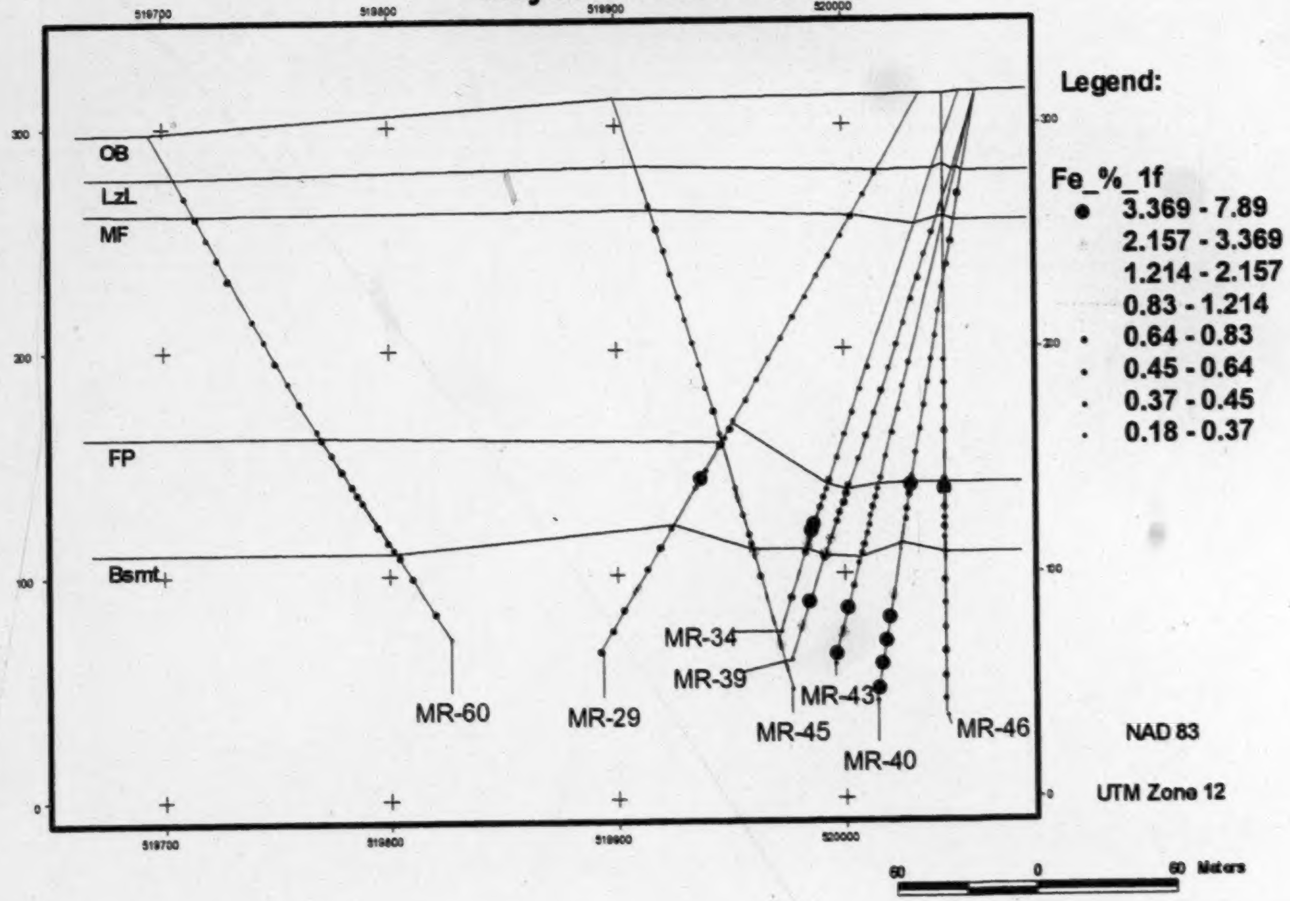
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Eu_ppm_4b
● 1.511 - 6.03
1.149 - 1.511
0.88 - 1.149
0.65 - 0.88
• 0.51 - 0.65
• 0.32 - 0.51
• 0.23 - 0.32
· 0.1 - 0.23
NAD 83
UTM Zone 12
60
0
60 Meters

Maybelle River Section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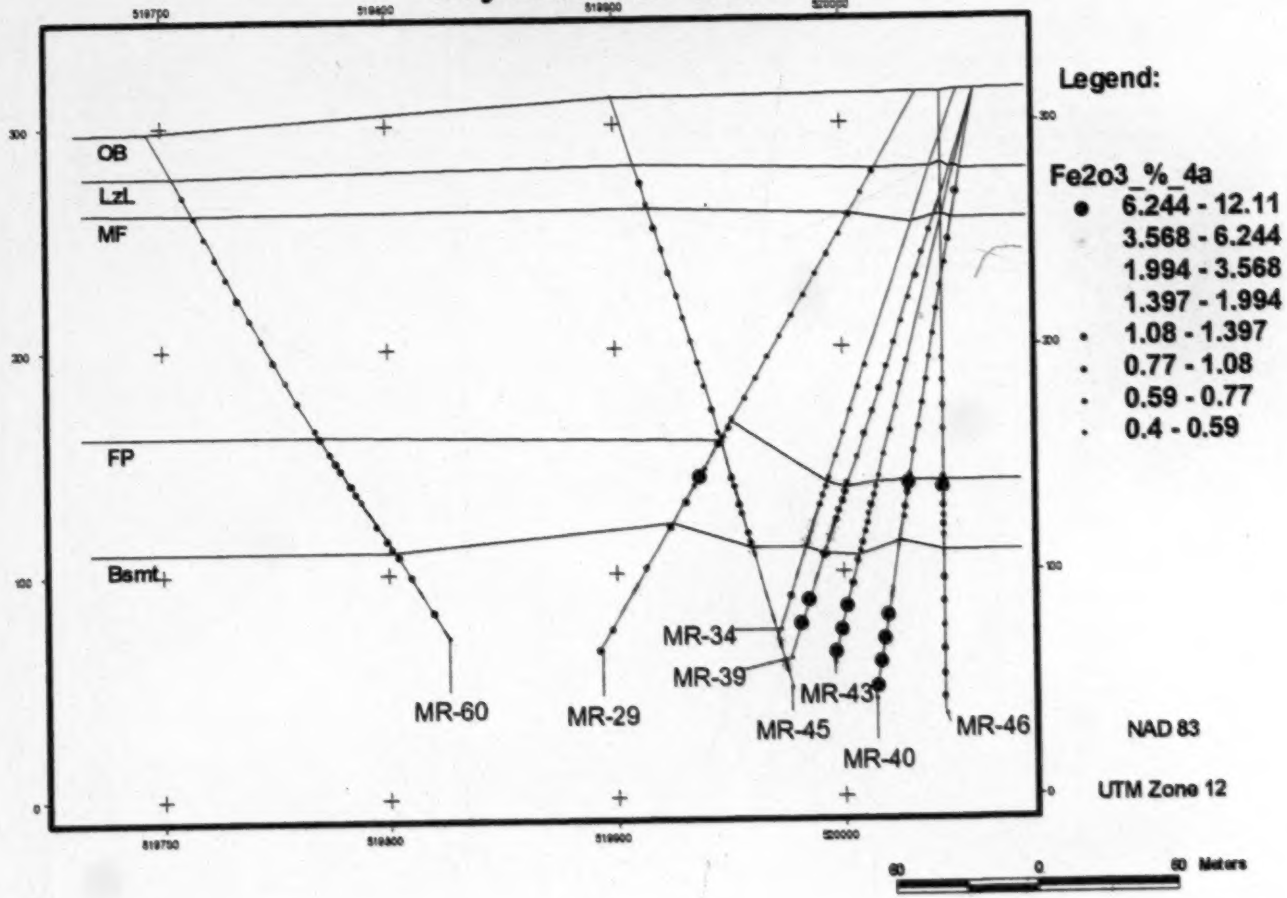
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Fe_%_1f
● 3.369 - 7.89
2.157 - 3.369
1.214 - 2.157
0.83 - 1.214
• 0.64 - 0.83
• 0.45 - 0.64
• 0.37 - 0.45
• 0.18 - 0.37
NAD 83
UTM Zone 12
60
0
60 Meters

Maybelle River Section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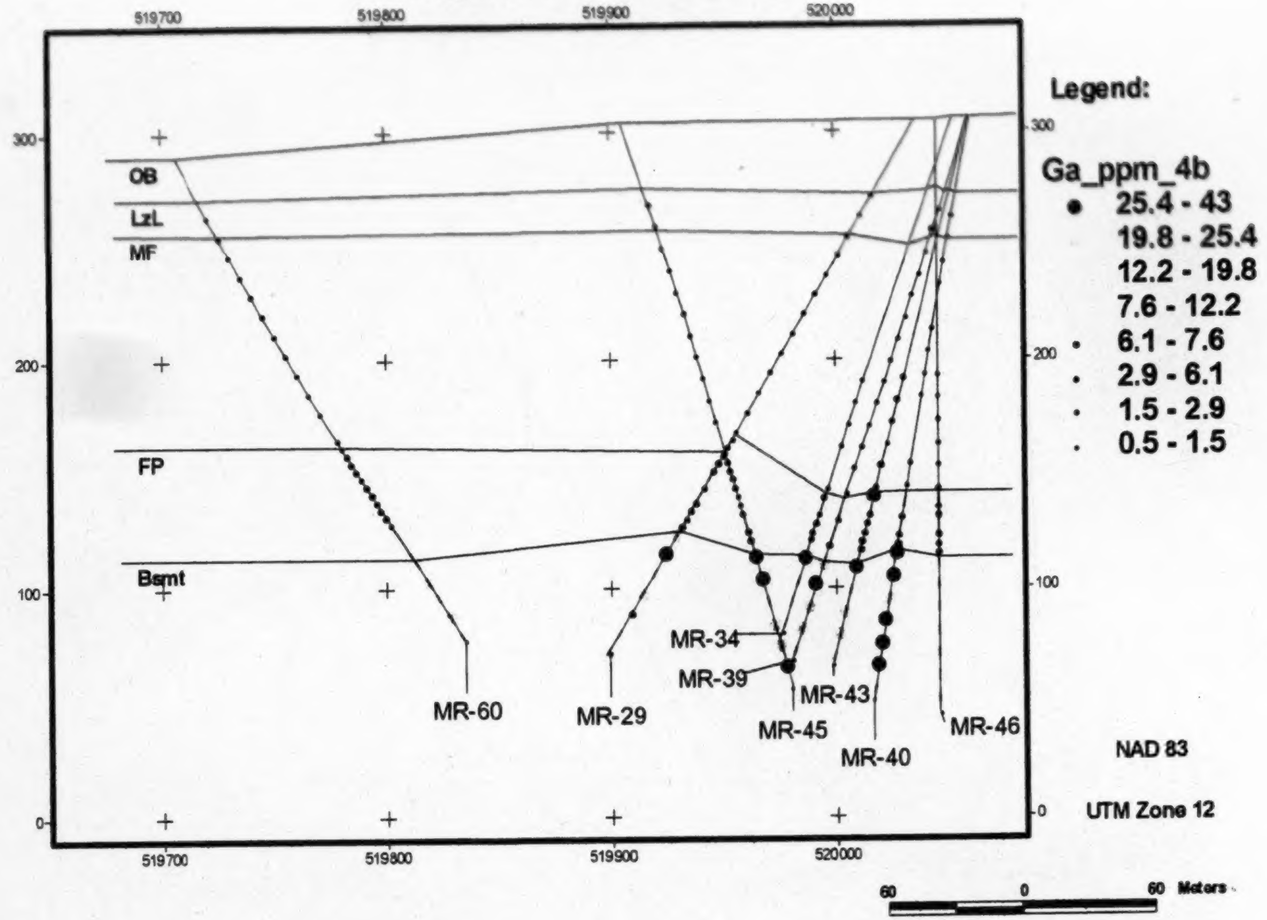
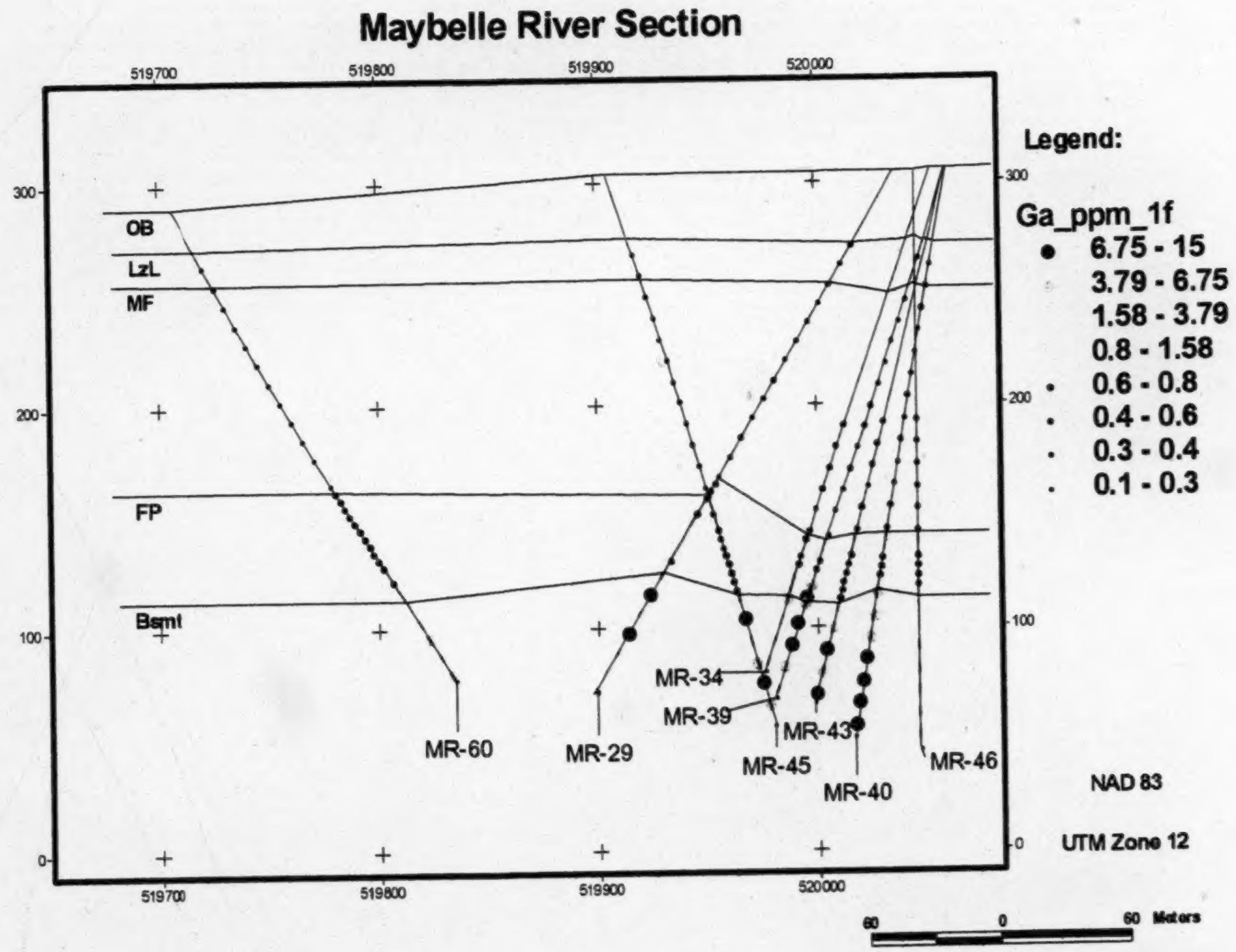
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Fe2o3_%_4a
● 6.244 - 12.11
3.568 - 6.244
1.994 - 3.568
1.397 - 1.994
• 1.08 - 1.397
• 0.77 - 1.08
• 0.59 - 0.77
• 0.4 - 0.59
NAD 83
UTM Zone 12
60
0
60 Meters

Maybelle River Section




Maybelle River Section
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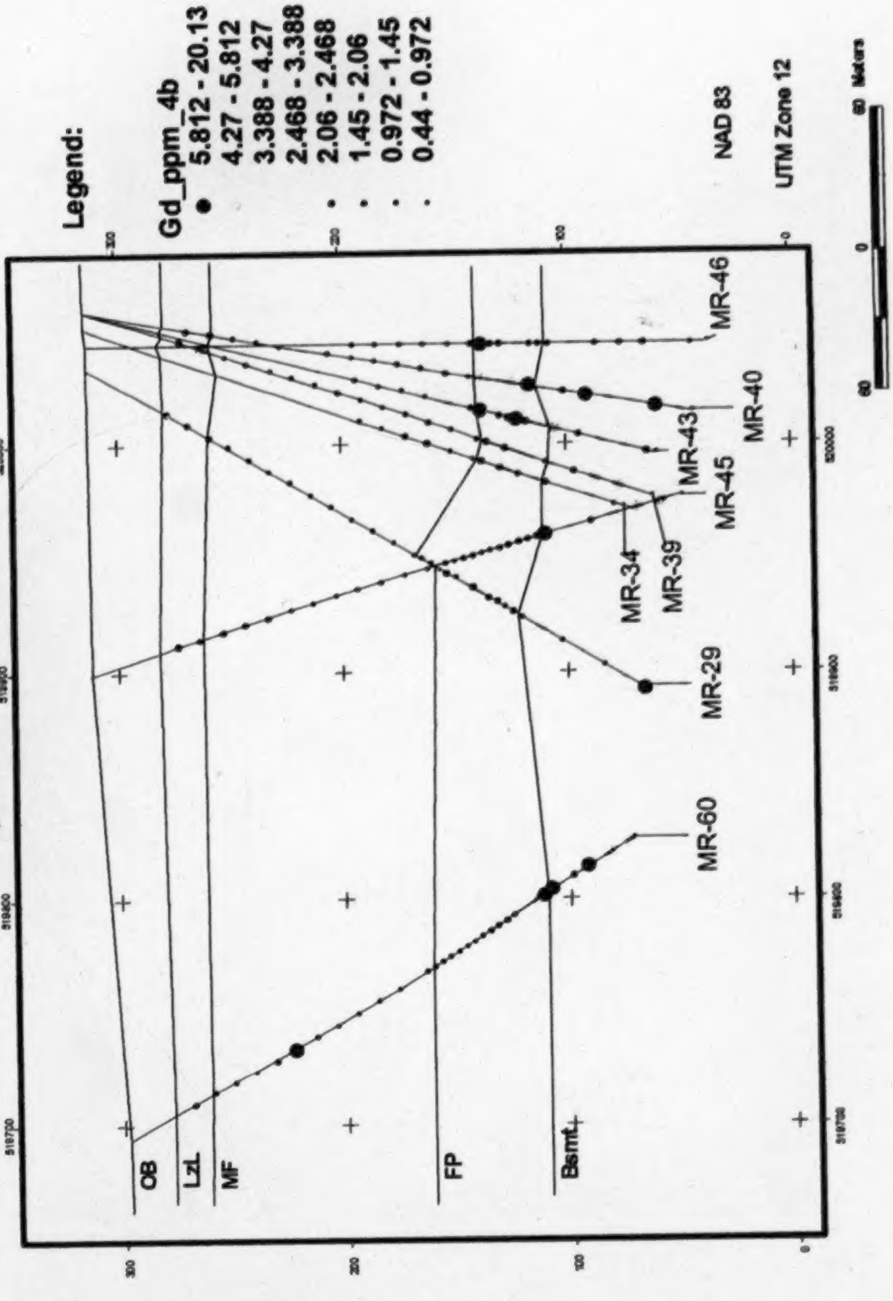
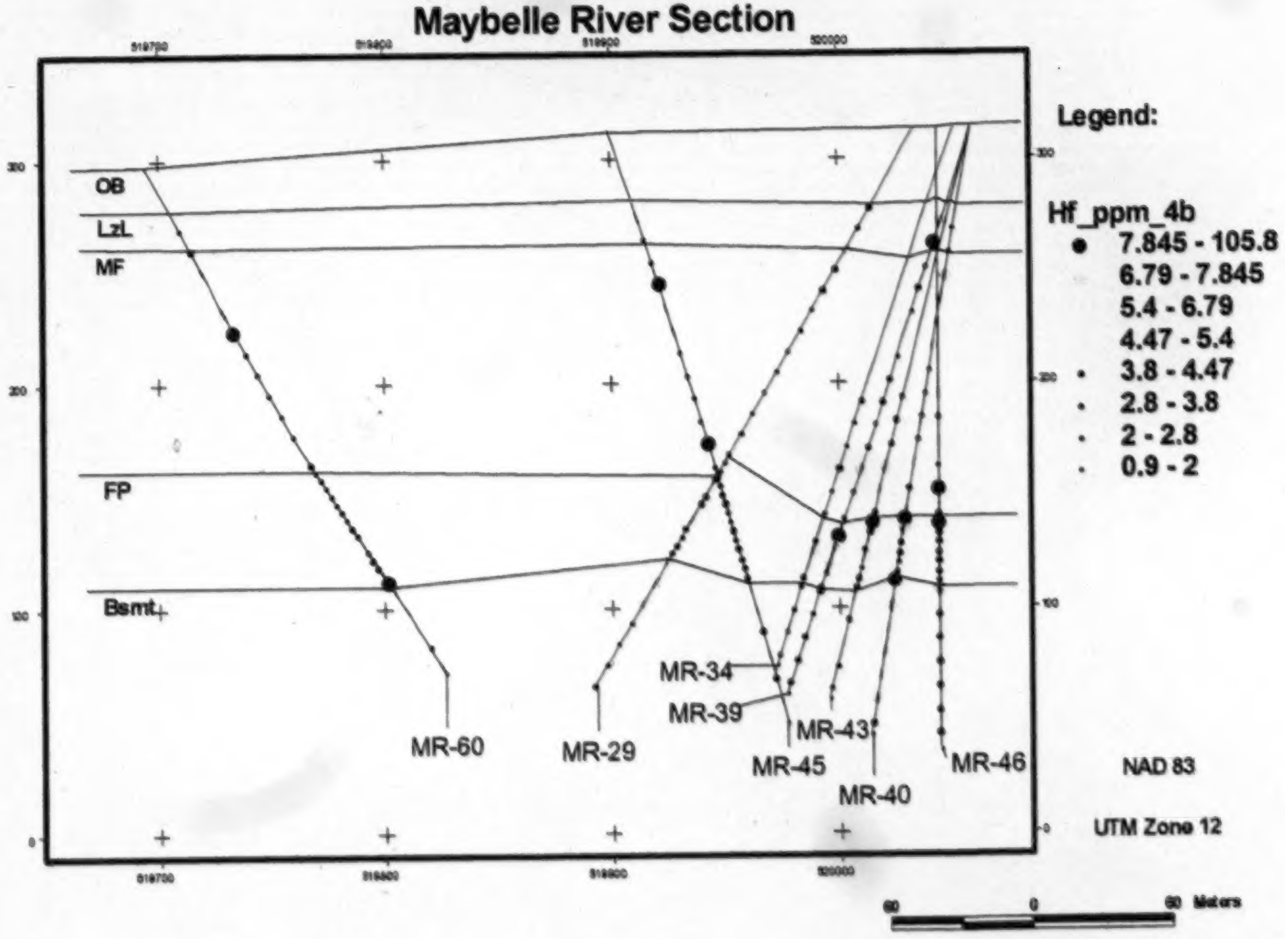
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Ga_ppm_1f
● 6.75 - 15
3.79 - 6.75
1.58 - 3.79
0.8 - 1.58
• 0.6 - 0.8
• 0.4 - 0.6
• 0.3 - 0.4
• 0.1 - 0.3
NAD 83
UTM Zone 12
60
0
60 Meters

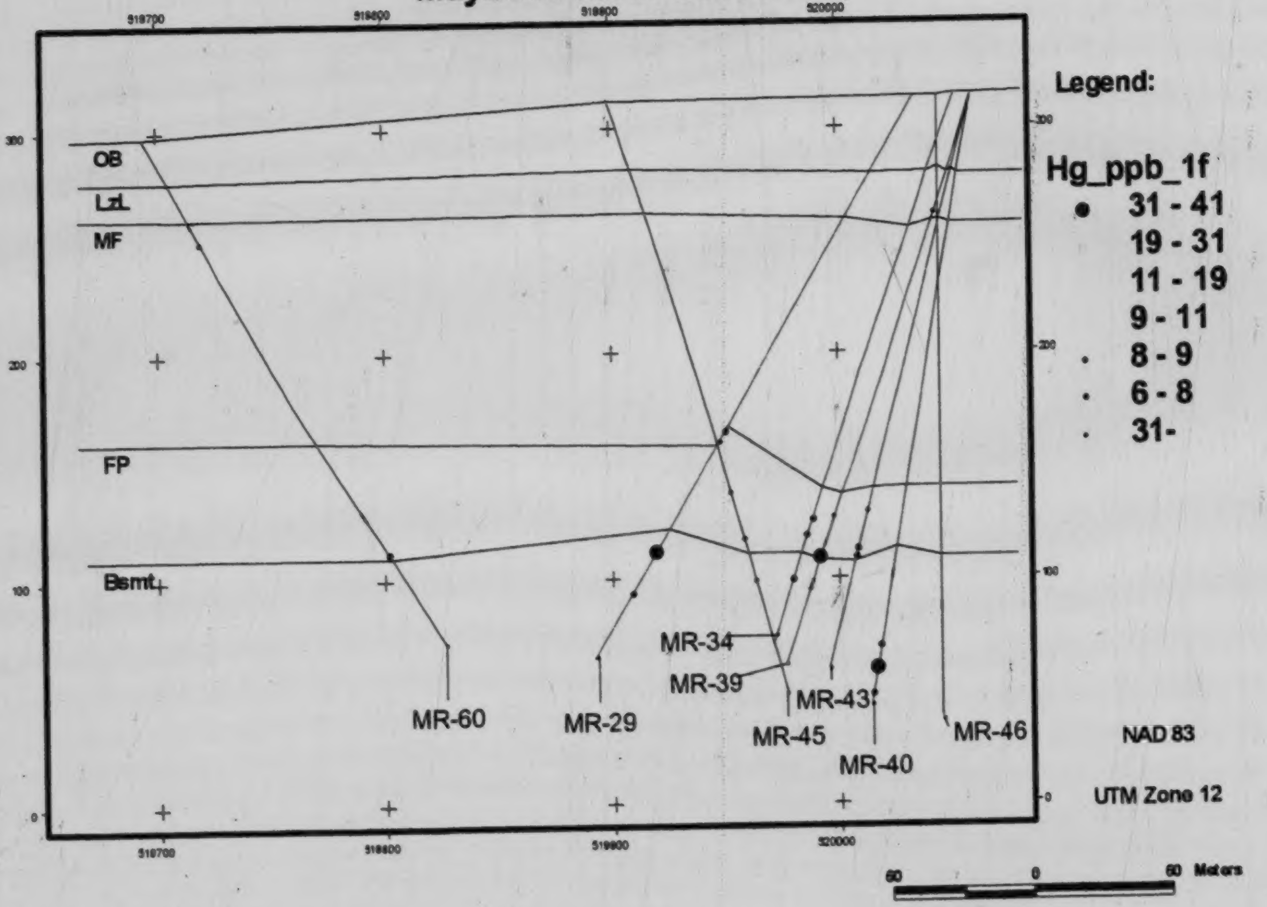
Maybelle River Section





Maybelle River Section

Maybelle River Section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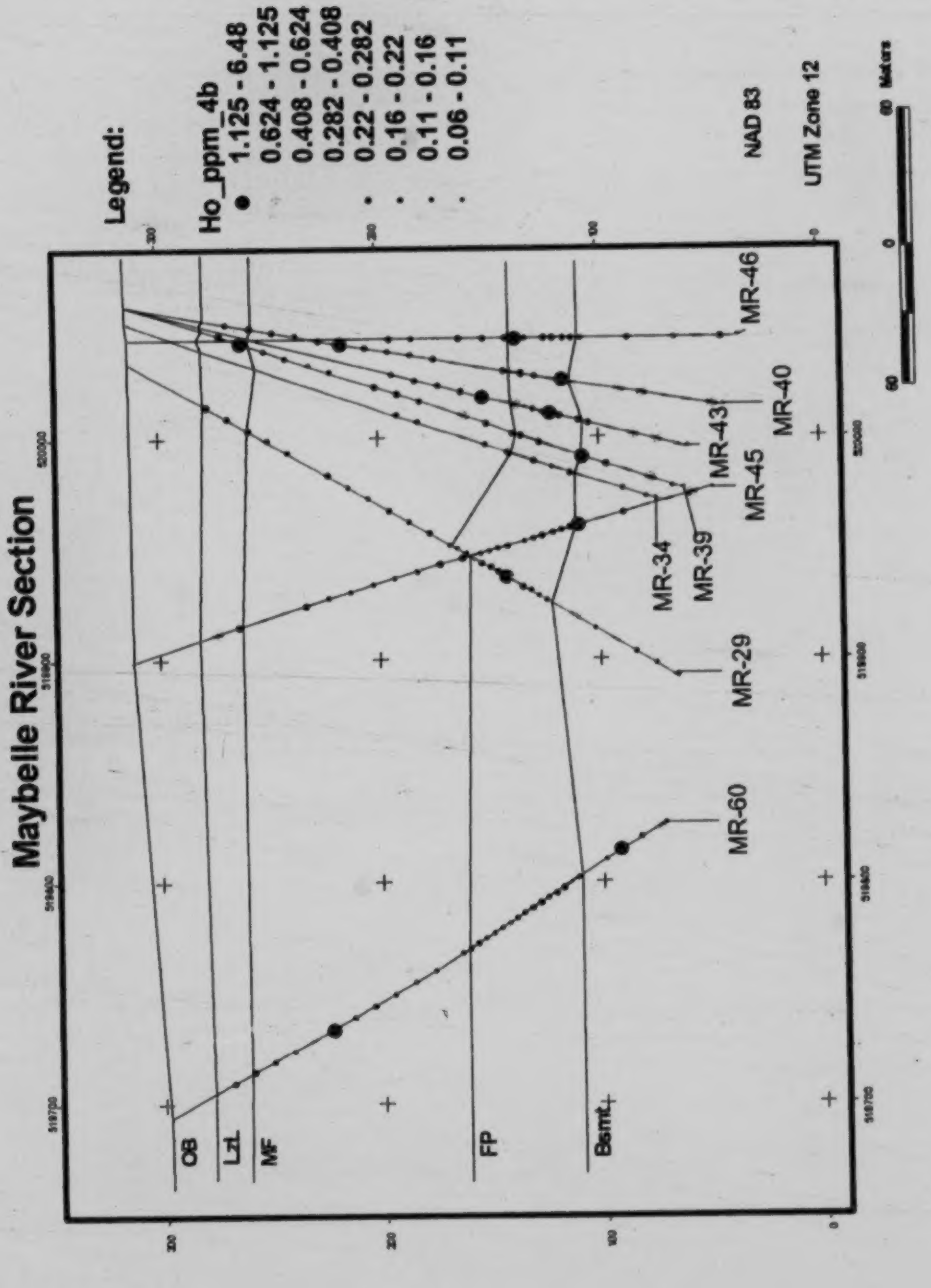
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Hg_ppb_1f
● 31 - 41
19 - 31
11 - 19
9 - 11
• 8 - 9
• 6 - 8
• 31-
NAD 83
UTM Zone 12
60
0
60 Meters


Maybelle River Section
Legend:
Ho_ppm_4b
● 1.125 - 6.48
0.624 - 1.125
0.408 - 0.624
0.282 - 0.408
0.22 - 0.282
0.16 - 0.22
0.11 - 0.16
0.06 - 0.11
NAD 83
UTM Zone 12
0
50
Meters
OB
Lzl
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
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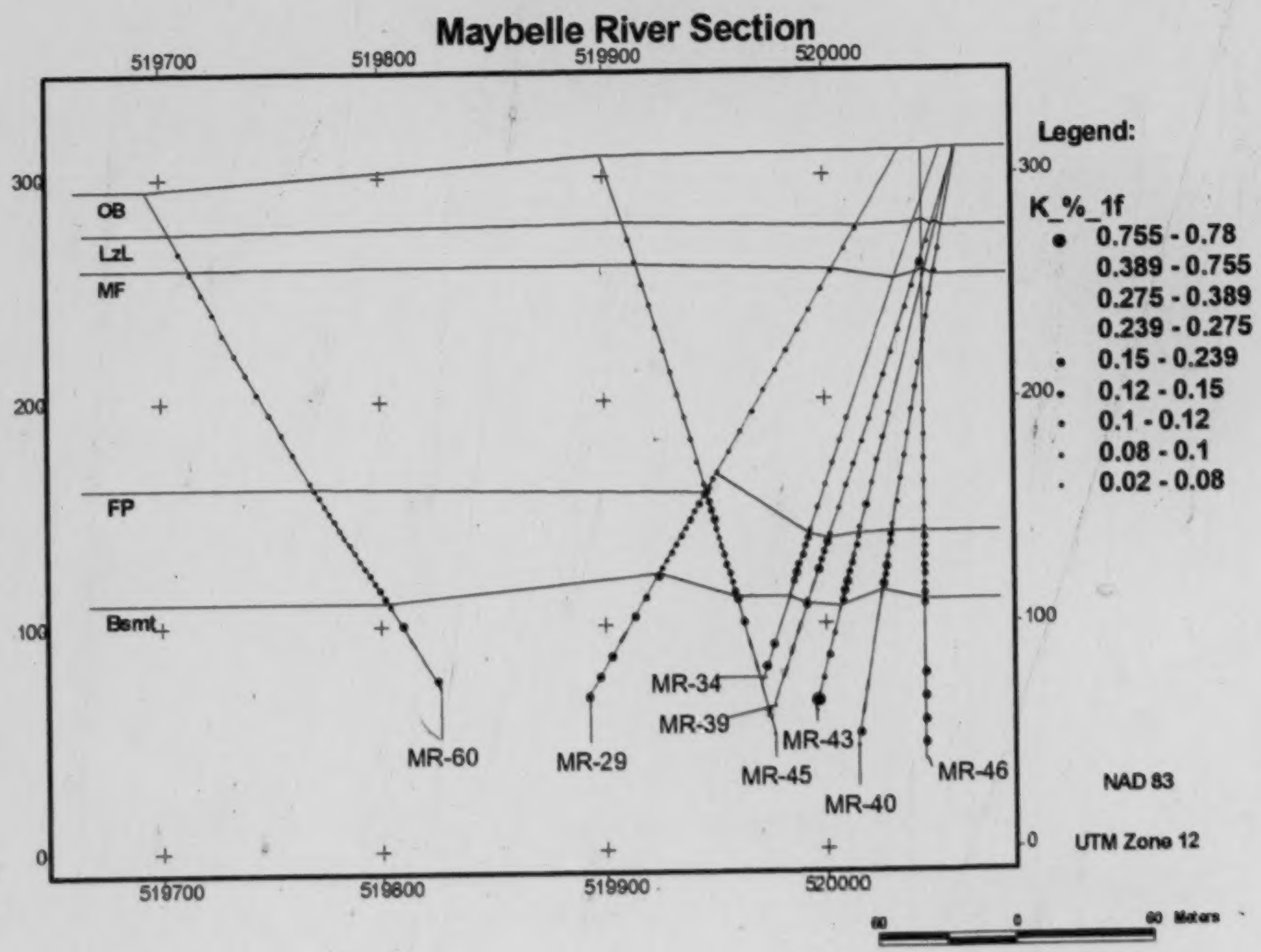
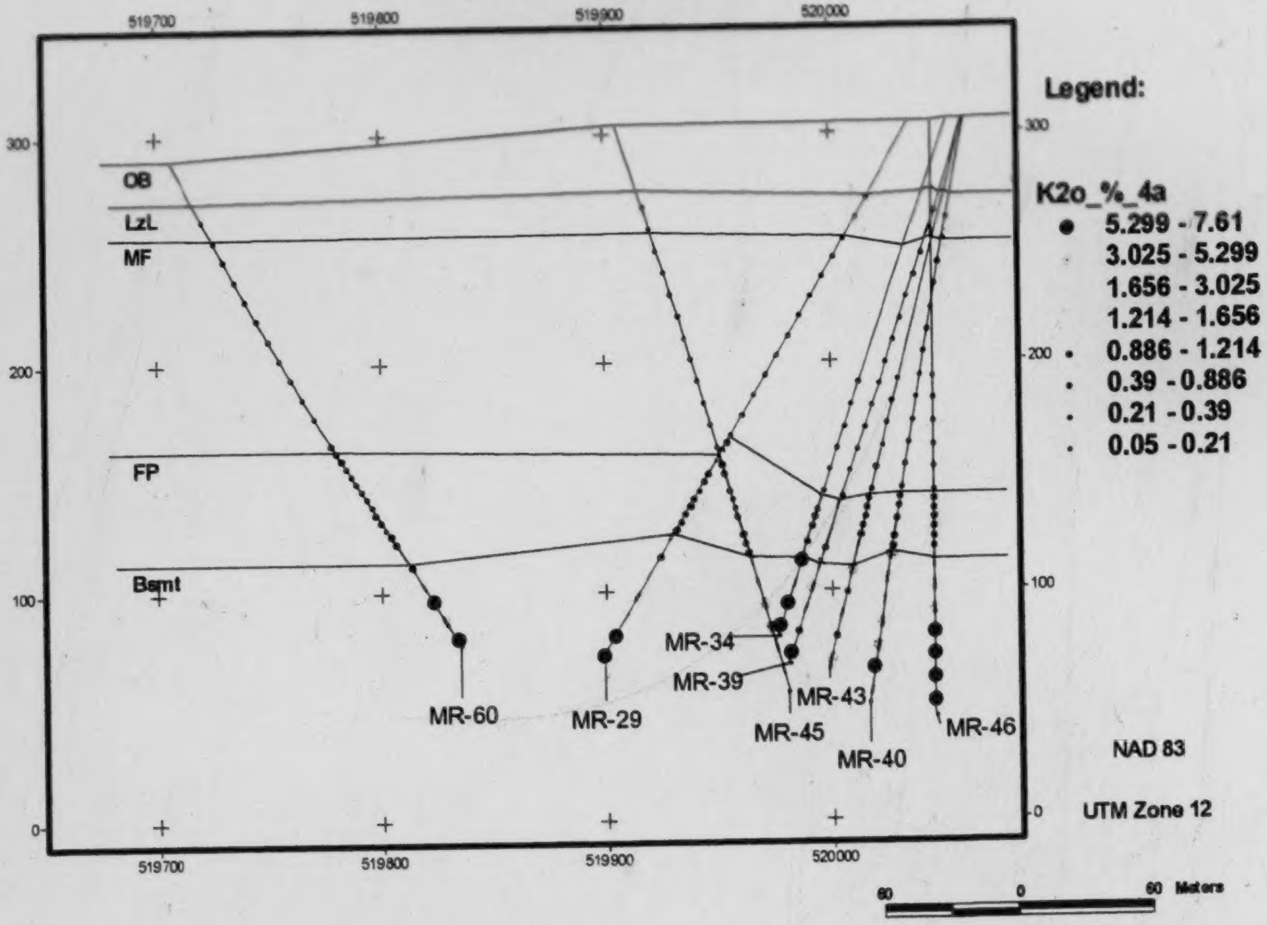
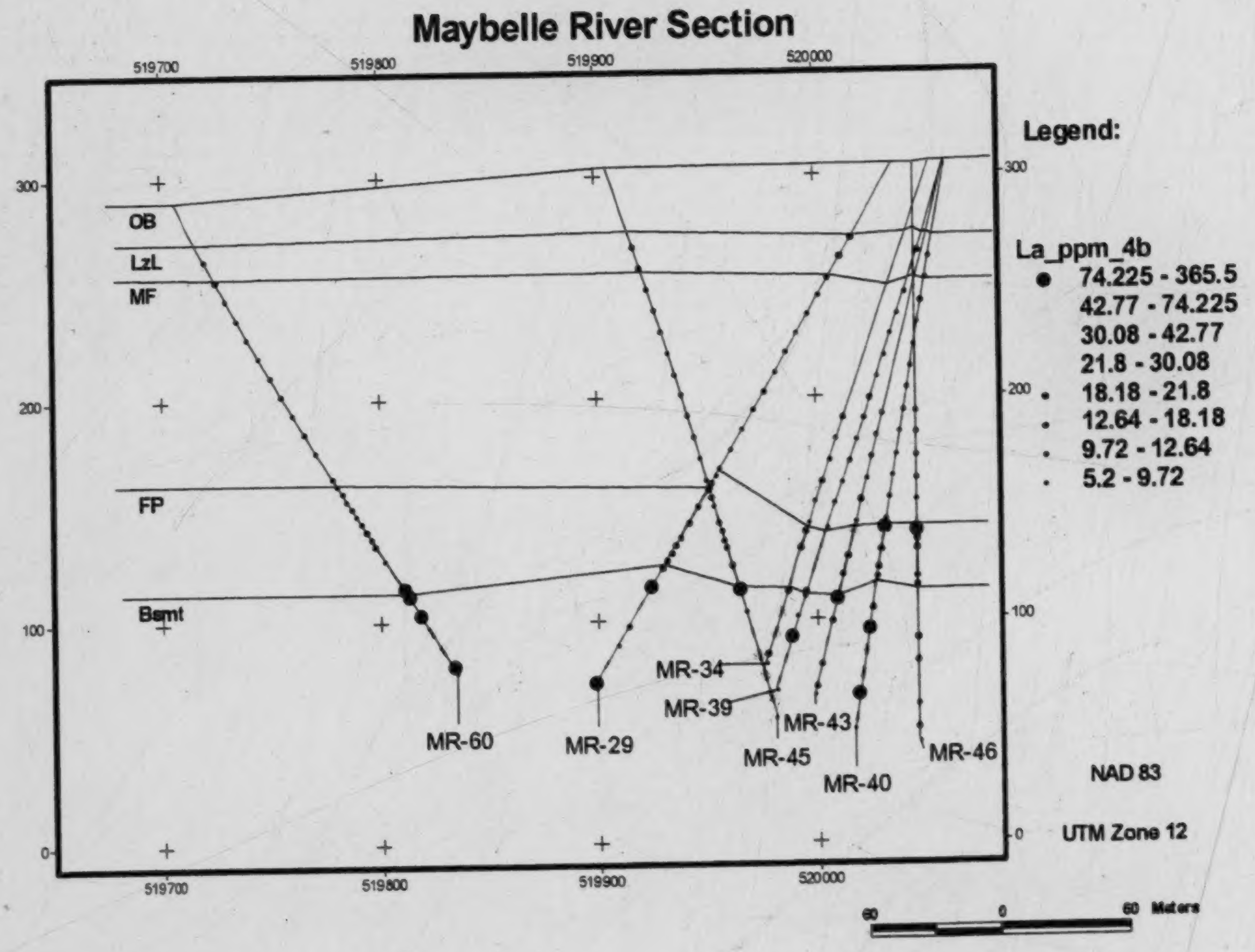
519800
519900
520000
0
100
200
300



Maybelle River Section

Maybelle River Section




Maybelle River Section
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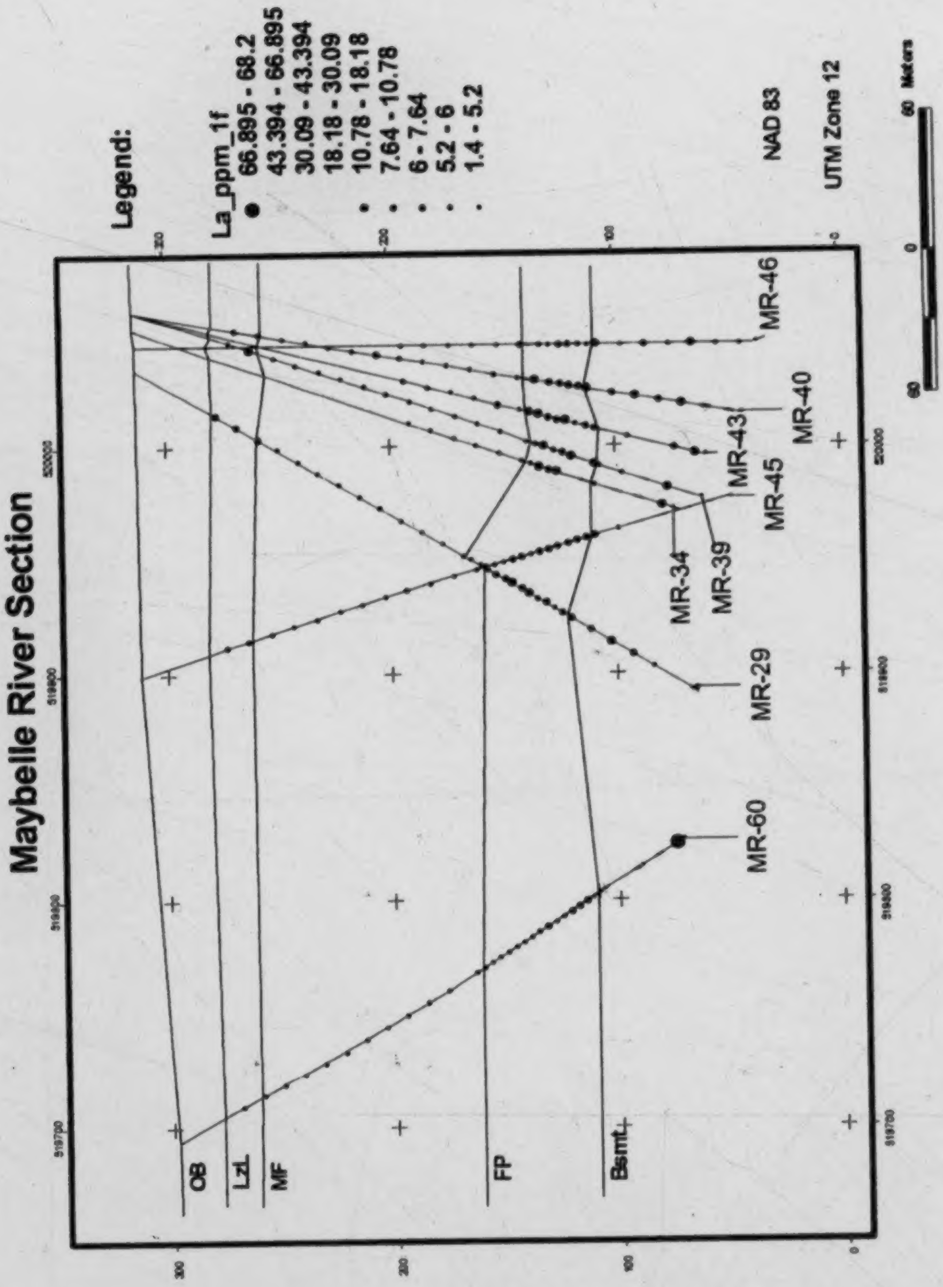
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
La_ppm_4b
● 74.225 - 365.5
42.77 - 74.225
30.08 - 42.77
21.8 - 30.08
18.18 - 21.8
12.64 - 18.18
9.72 - 12.64
5.2 - 9.72
NAD 83
UTM Zone 12
60
0
60 Meters


Maybelle River Section
Legend:
La_ppm_1f
● 66.895 - 68.2
● 43.394 - 66.895
● 30.09 - 43.394
● 18.18 - 30.09
• 10.78 - 18.18
• 7.64 - 10.78
• 6 - 7.64
• 5.2 - 6
• 1.4 - 5.2
NAD 83
UTM Zone 12
60 0 60 Meters
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
300
200
100
0
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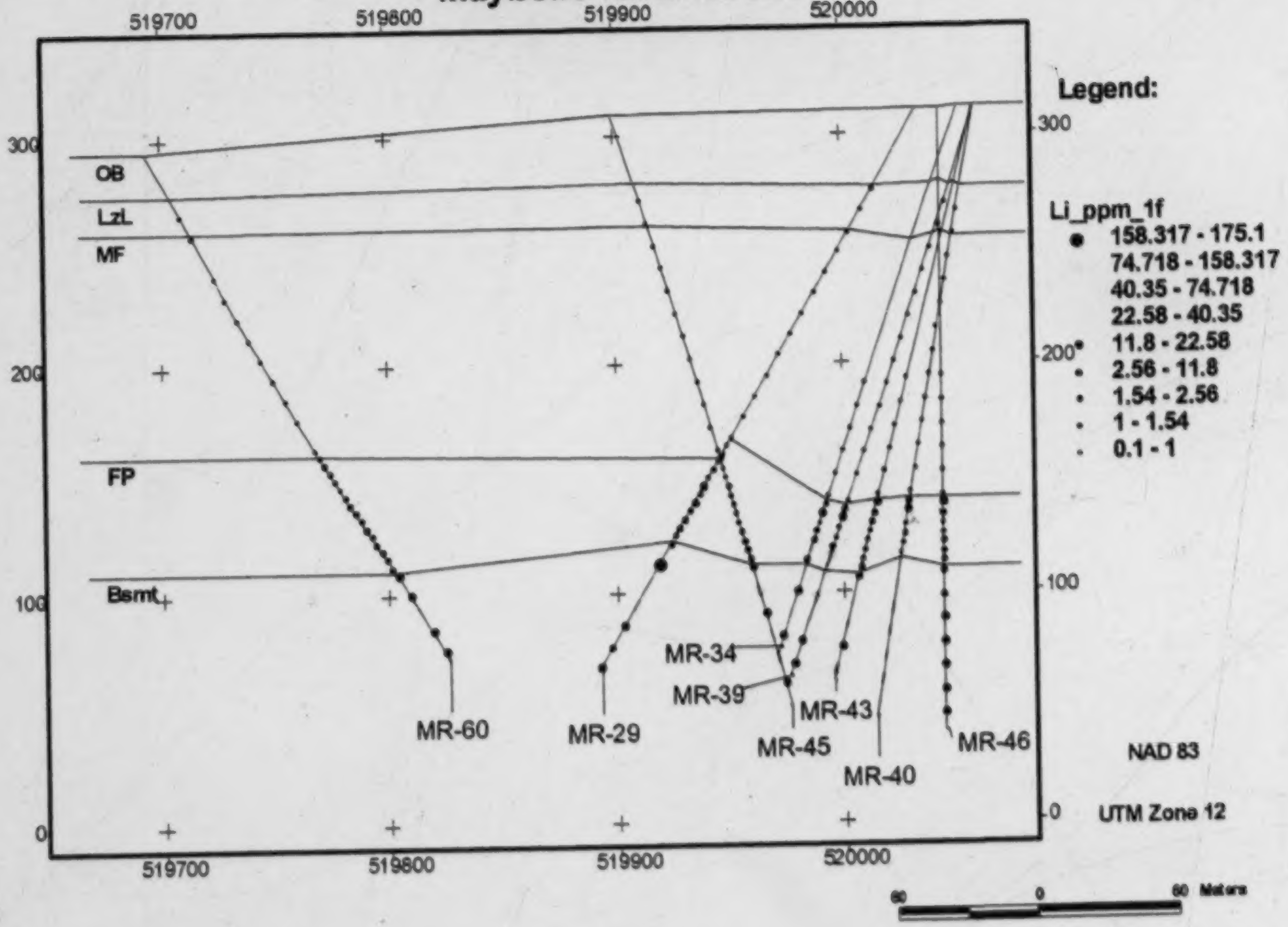
519800
519900
520000

Maybelle River Section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519800
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300
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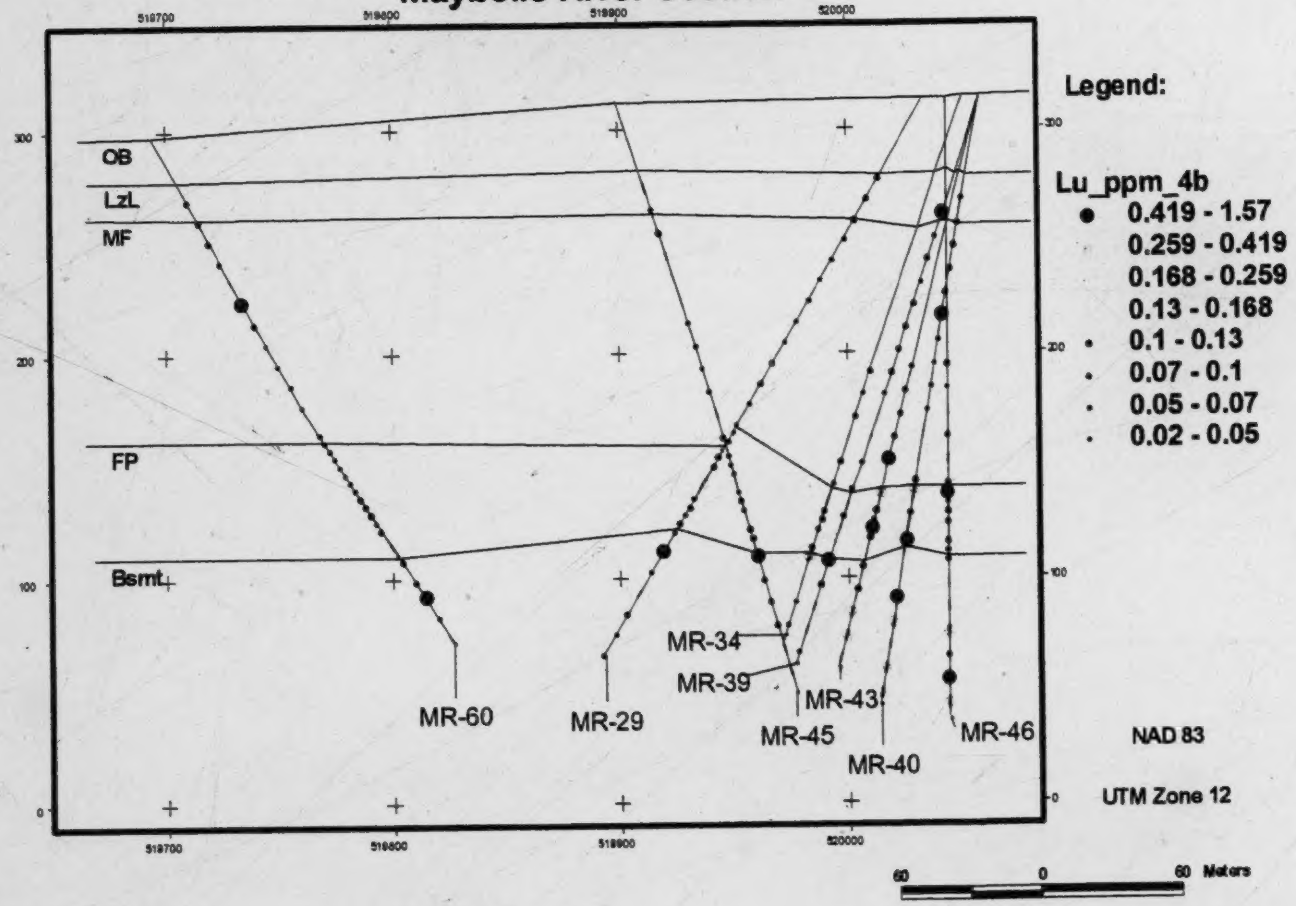
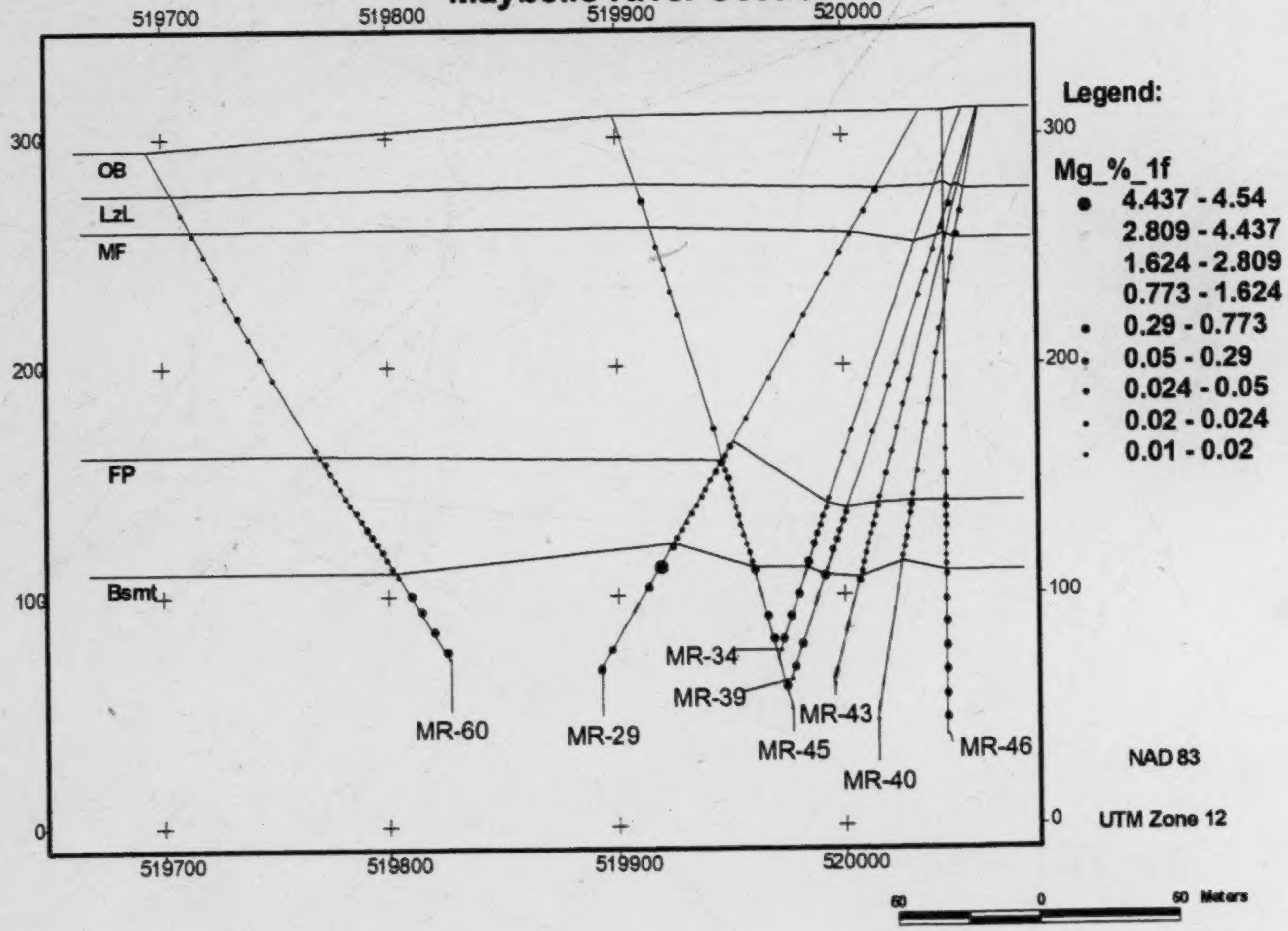
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Li_ppm_1f
● 158.317 - 175.1
74.718 - 158.317
40.35 - 74.718
22.58 - 40.35
11.8 - 22.58
2.56 - 11.8
1.54 - 2.56
1 - 1.54
0.1 - 1
NAD 83
UTM Zone 12
60
0
60 Meters

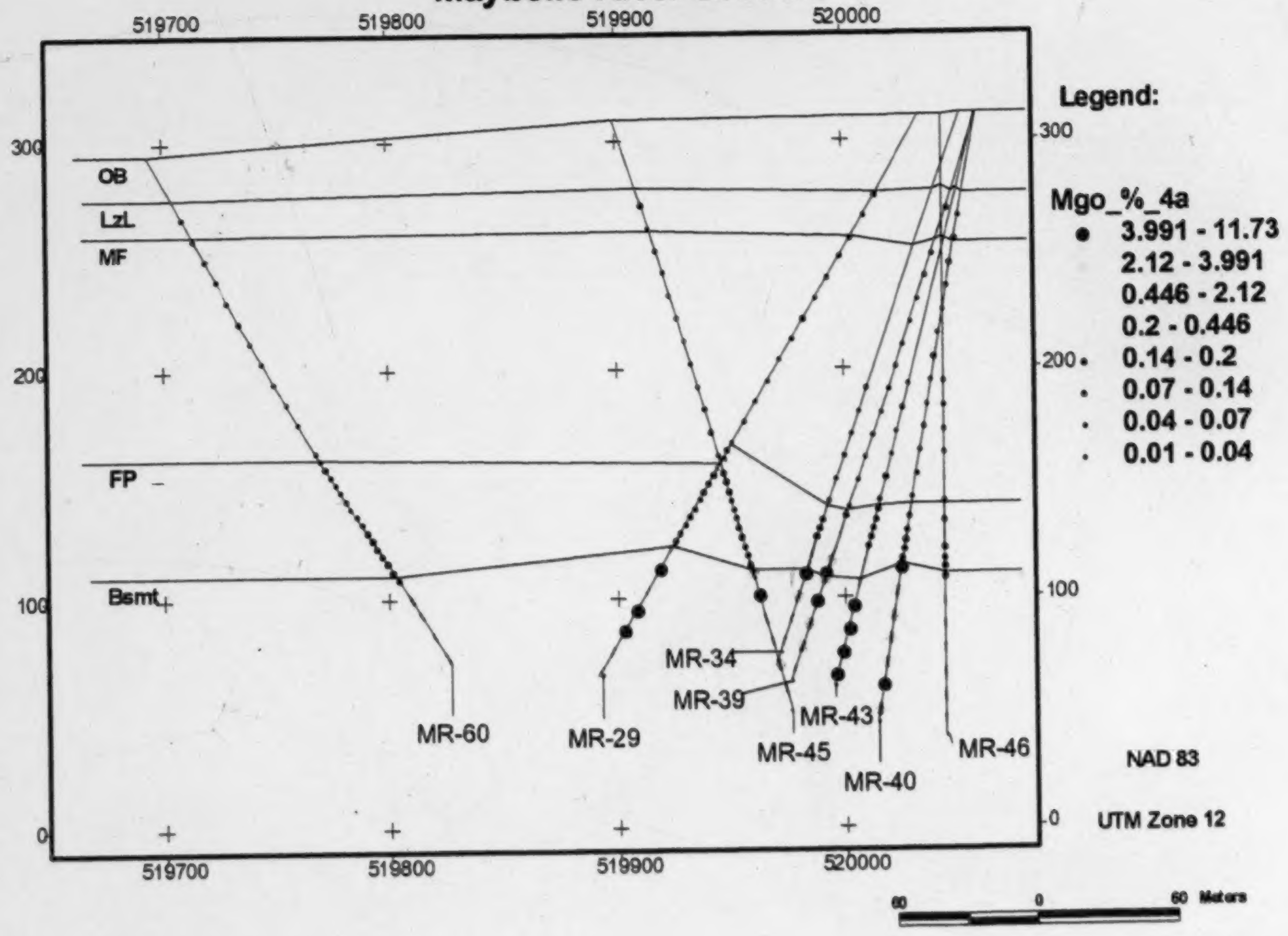
Maybelle River Section

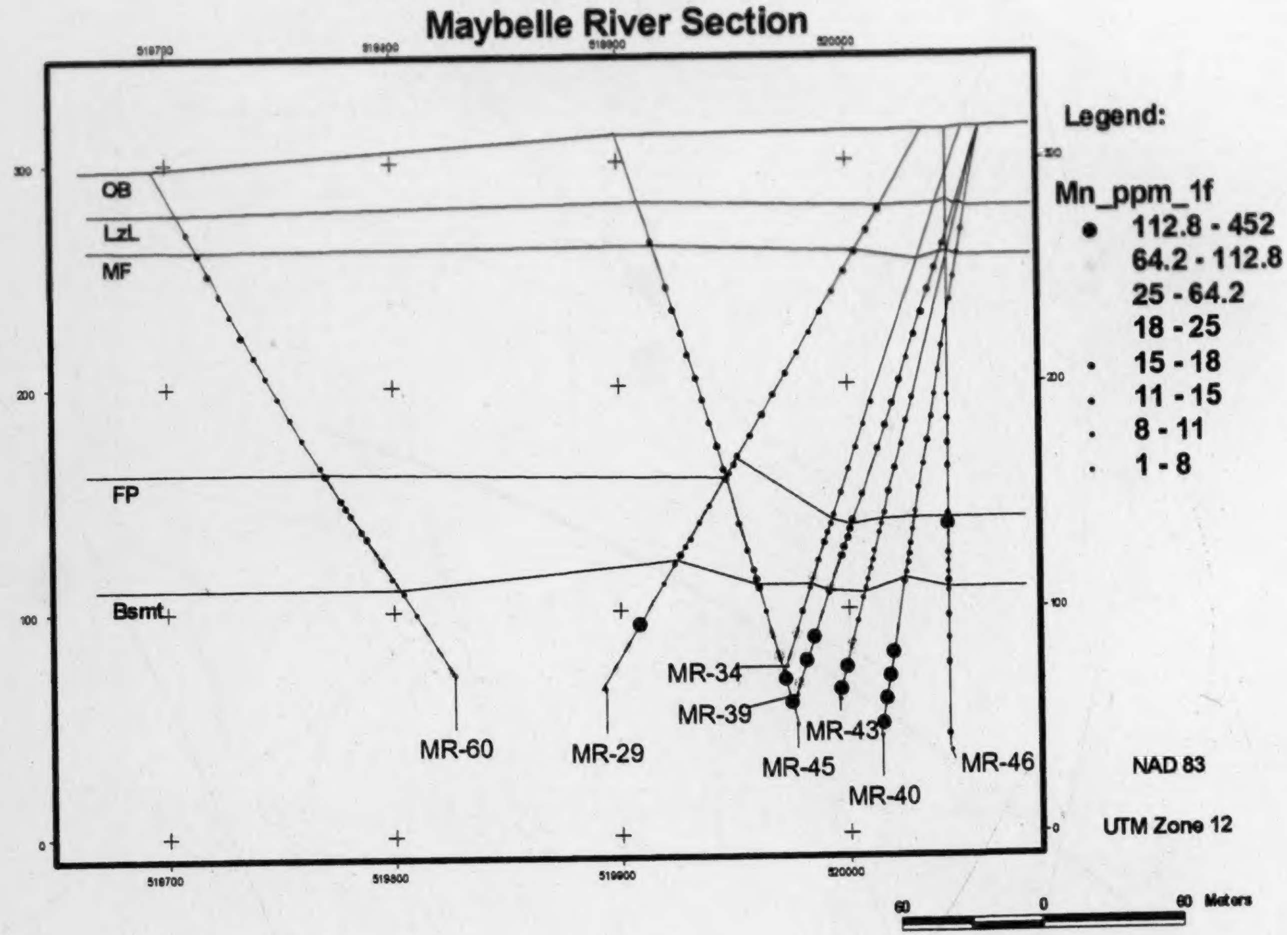


Maybelle River Section



Maybelle River Section




Maybelle River Section
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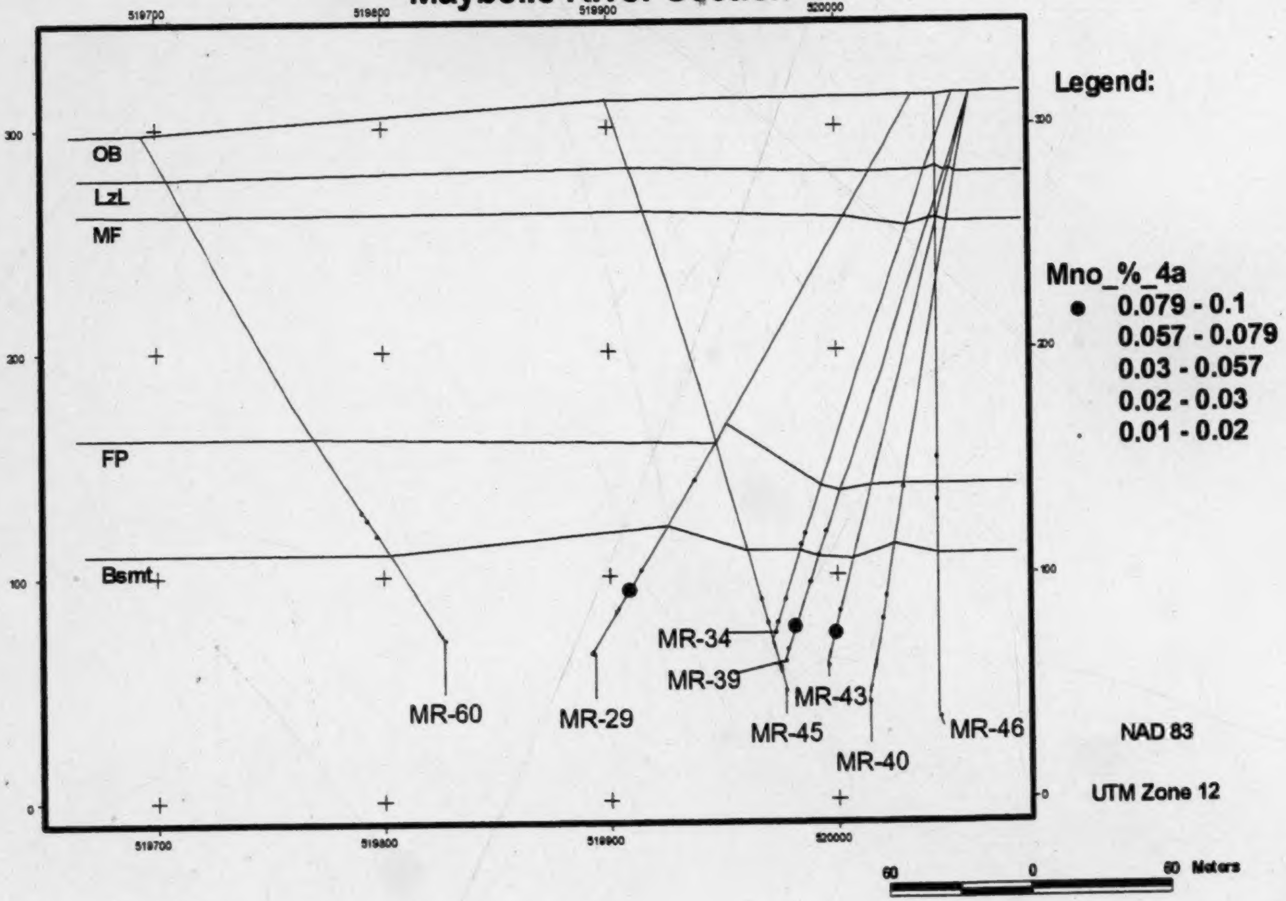
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Mn_ppm_1f
● 112.8 - 452
64.2 - 112.8
25 - 64.2
18 - 25
15 - 18
11 - 15
8 - 11
1 - 8
NAD 83
UTM Zone 12
60
0
60
Meters

Maybelle River Section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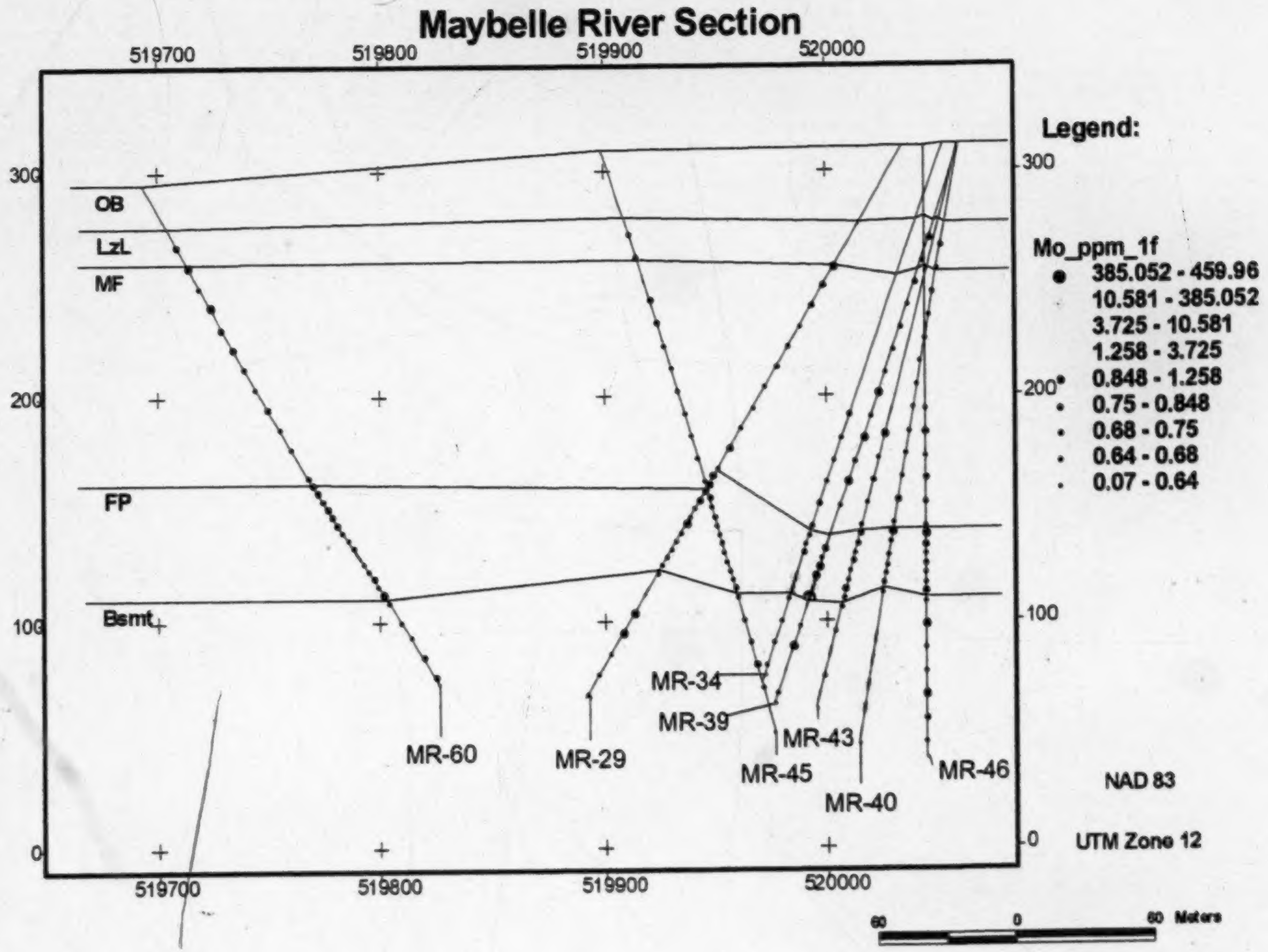
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Mno_%_4a
● 0.079 - 0.1
0.057 - 0.079
0.03 - 0.057
0.02 - 0.03
· 0.01 - 0.02
NAD 83
UTM Zone 12
60
0
60 Meters


Maybelle River Section
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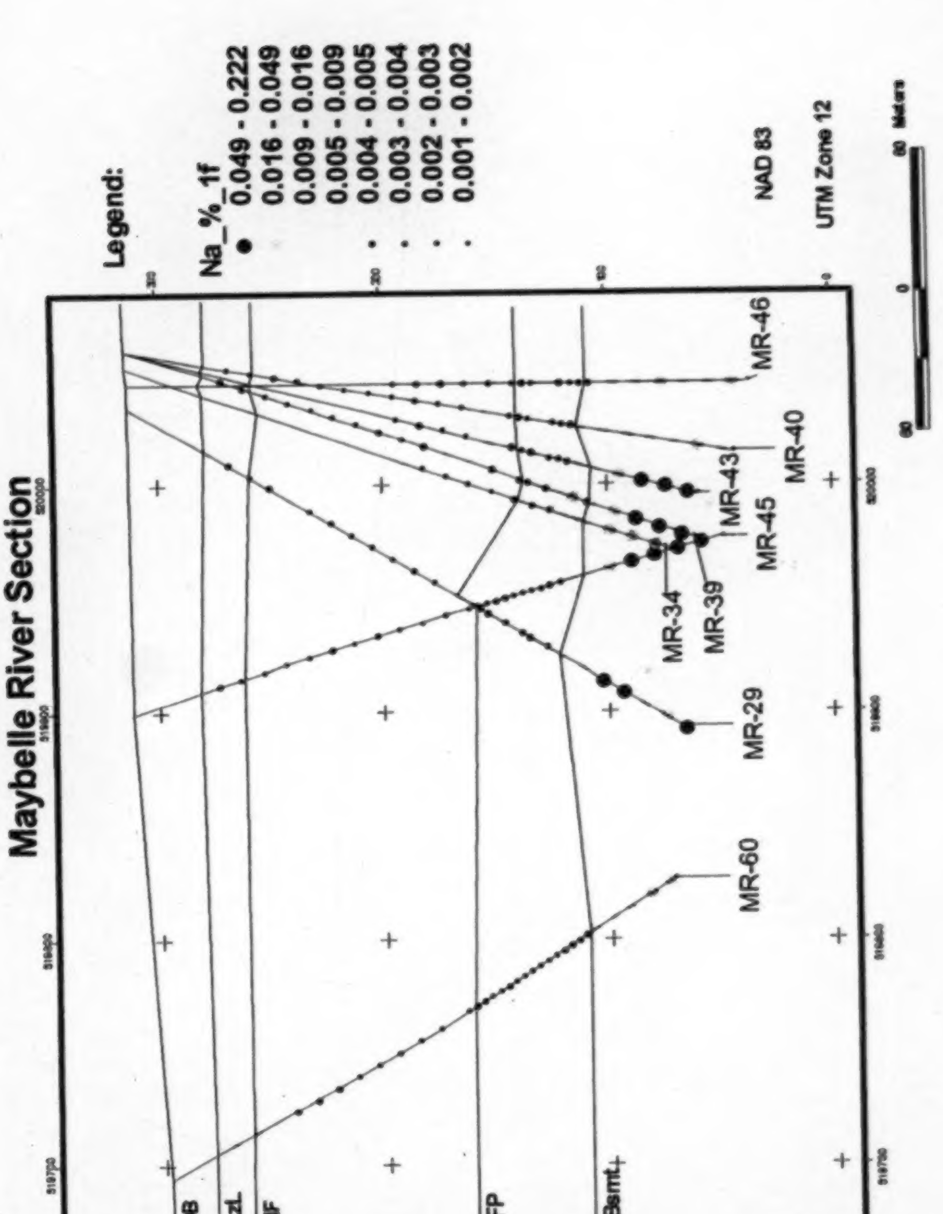
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Mo_ppm_1f
● 385.052 - 459.96
10.581 - 385.052
3.725 - 10.581
1.258 - 3.725
• 0.848 - 1.258
• 0.75 - 0.848
• 0.68 - 0.75
• 0.64 - 0.68
• 0.07 - 0.64
NAD 83
UTM Zone 12
60
0
60 Meters


Maybelle River Section
Legend:
Na_%_1f
● 0.049 - 0.222
0.016 - 0.049
0.009 - 0.016
0.005 - 0.009
0.004 - 0.005
0.003 - 0.004
0.002 - 0.003
0.001 - 0.002
NAD 83
UTM Zone 12
50
0
50
Meters
OB
LzL
MF
FP
Bsmt
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MR-40
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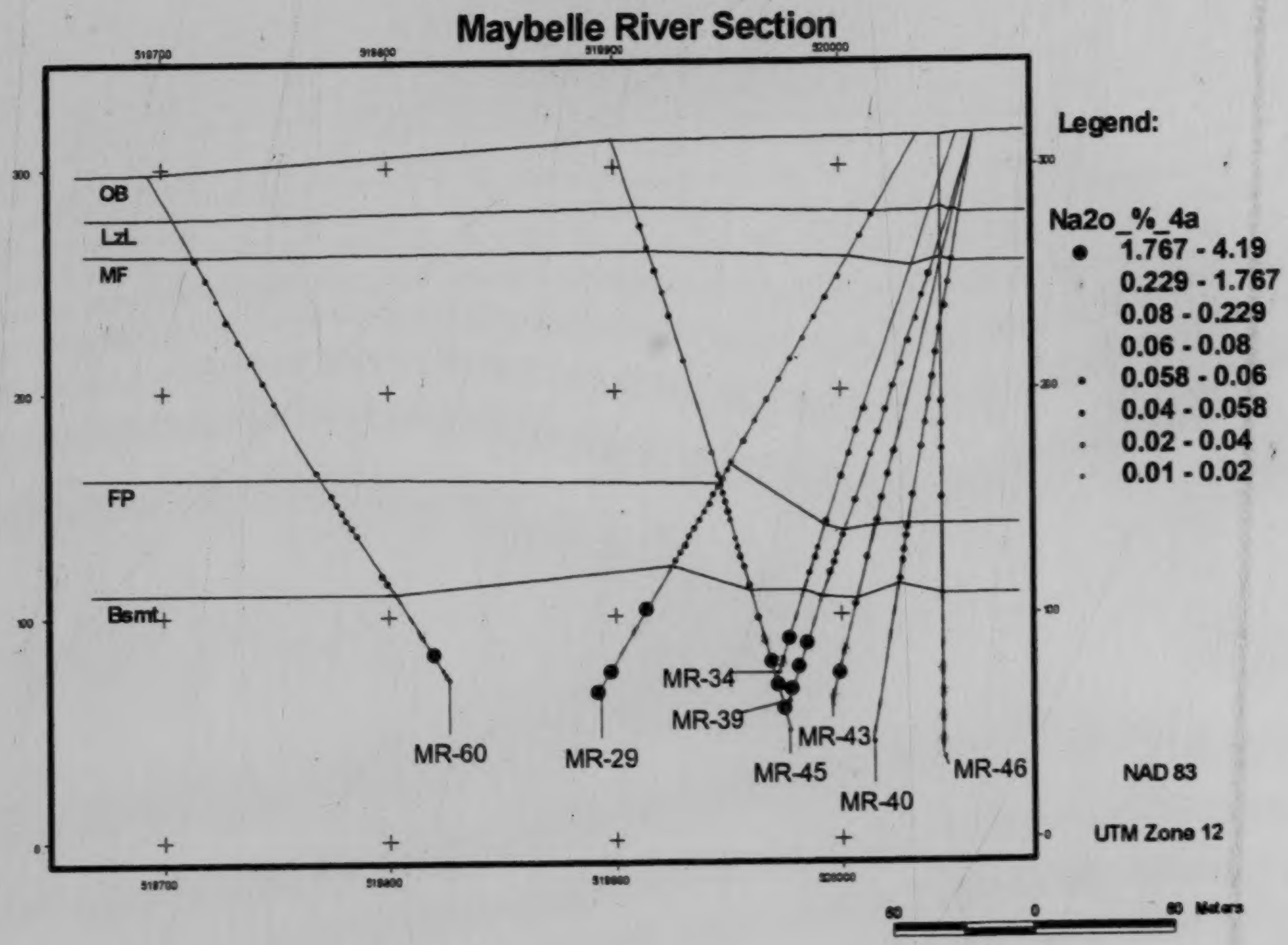
MR-60
300
200
100
0


Maybelle River Section
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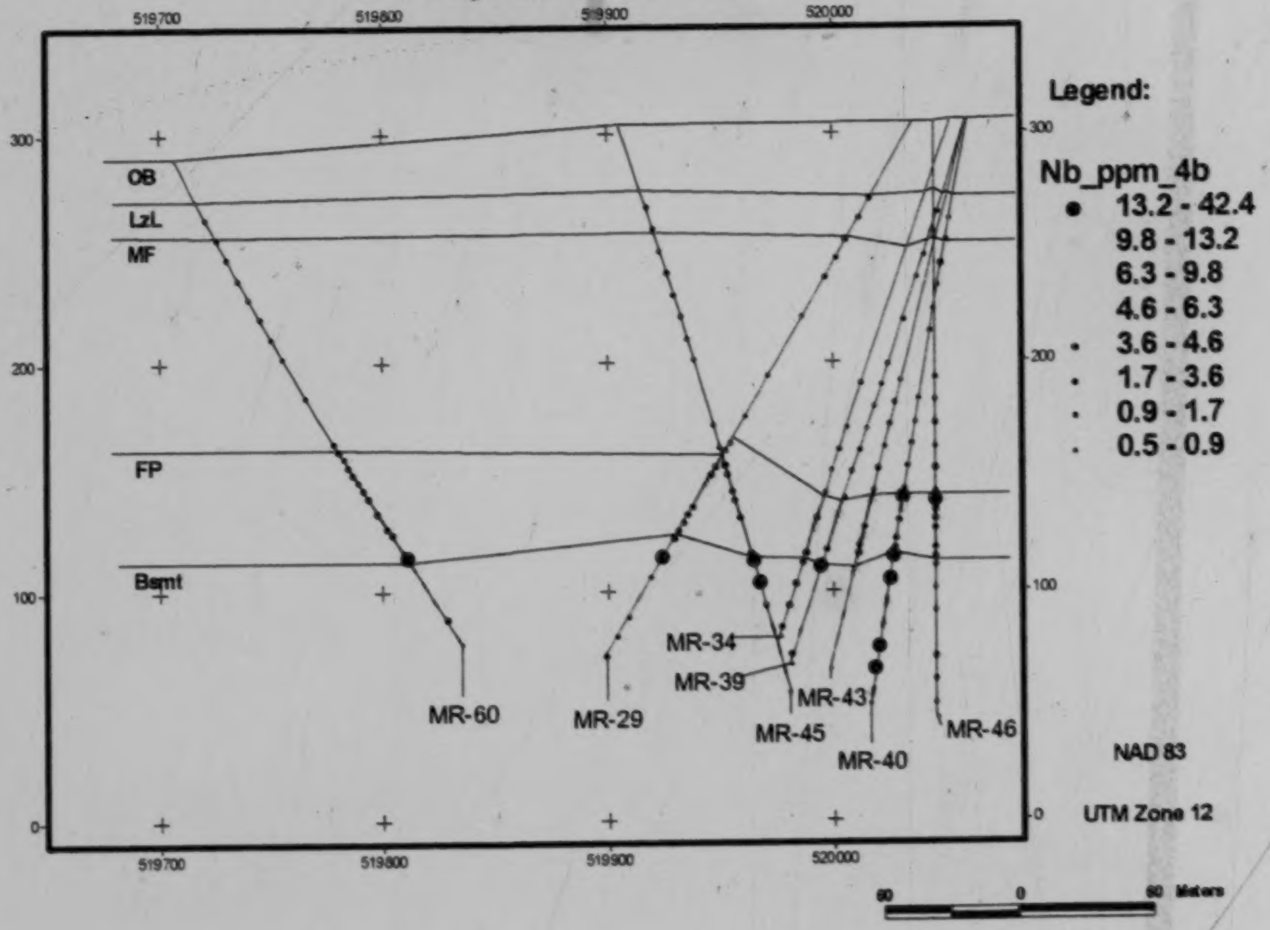
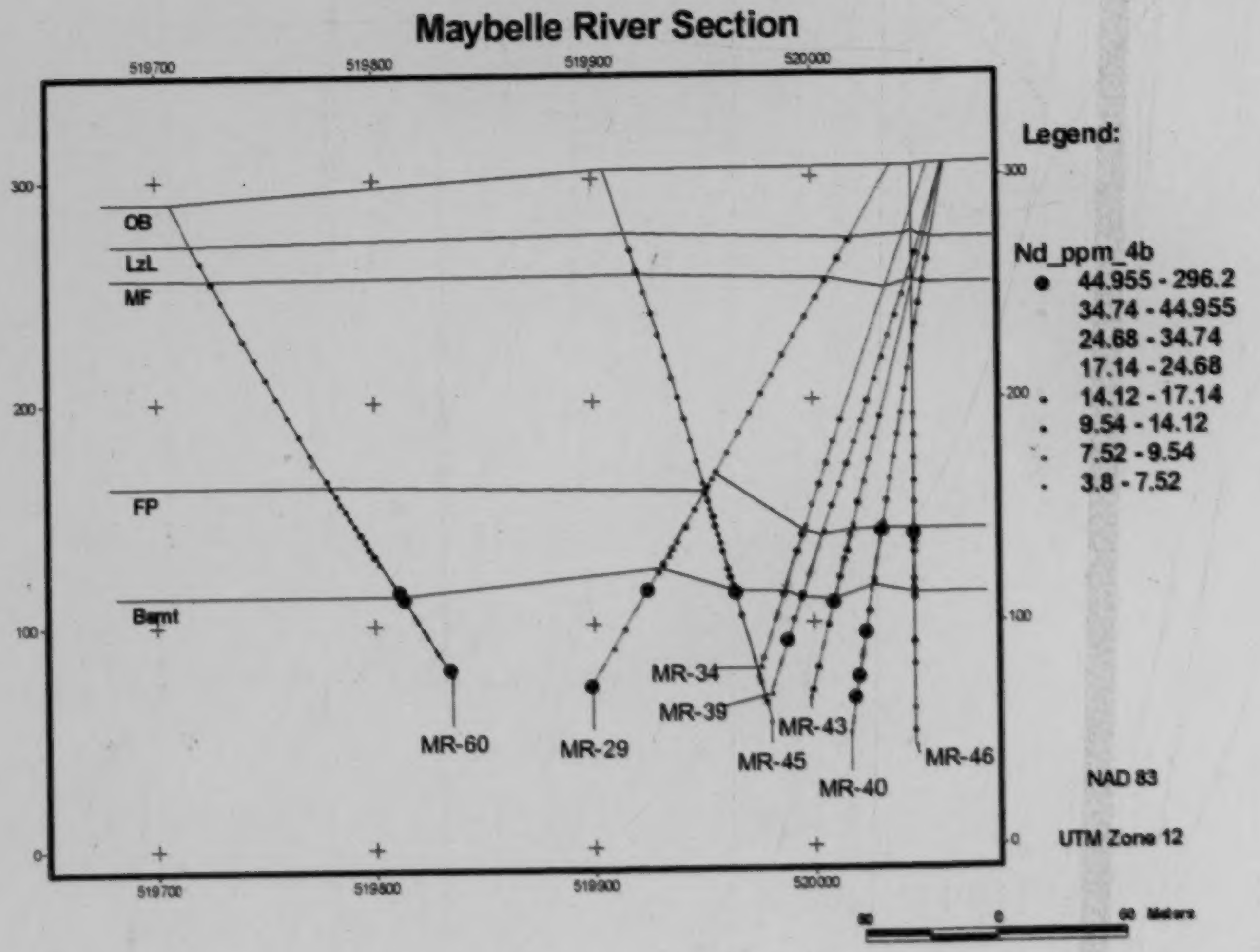
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Na2o_%_4a
● 1.767 - 4.19
0.229 - 1.767
0.08 - 0.229
0.06 - 0.08
• 0.058 - 0.06
• 0.04 - 0.058
• 0.02 - 0.04
• 0.01 - 0.02
NAD 83
UTM Zone 12
60
0
60
Meters

Maybelle River Section




Maybelle River Section
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519800
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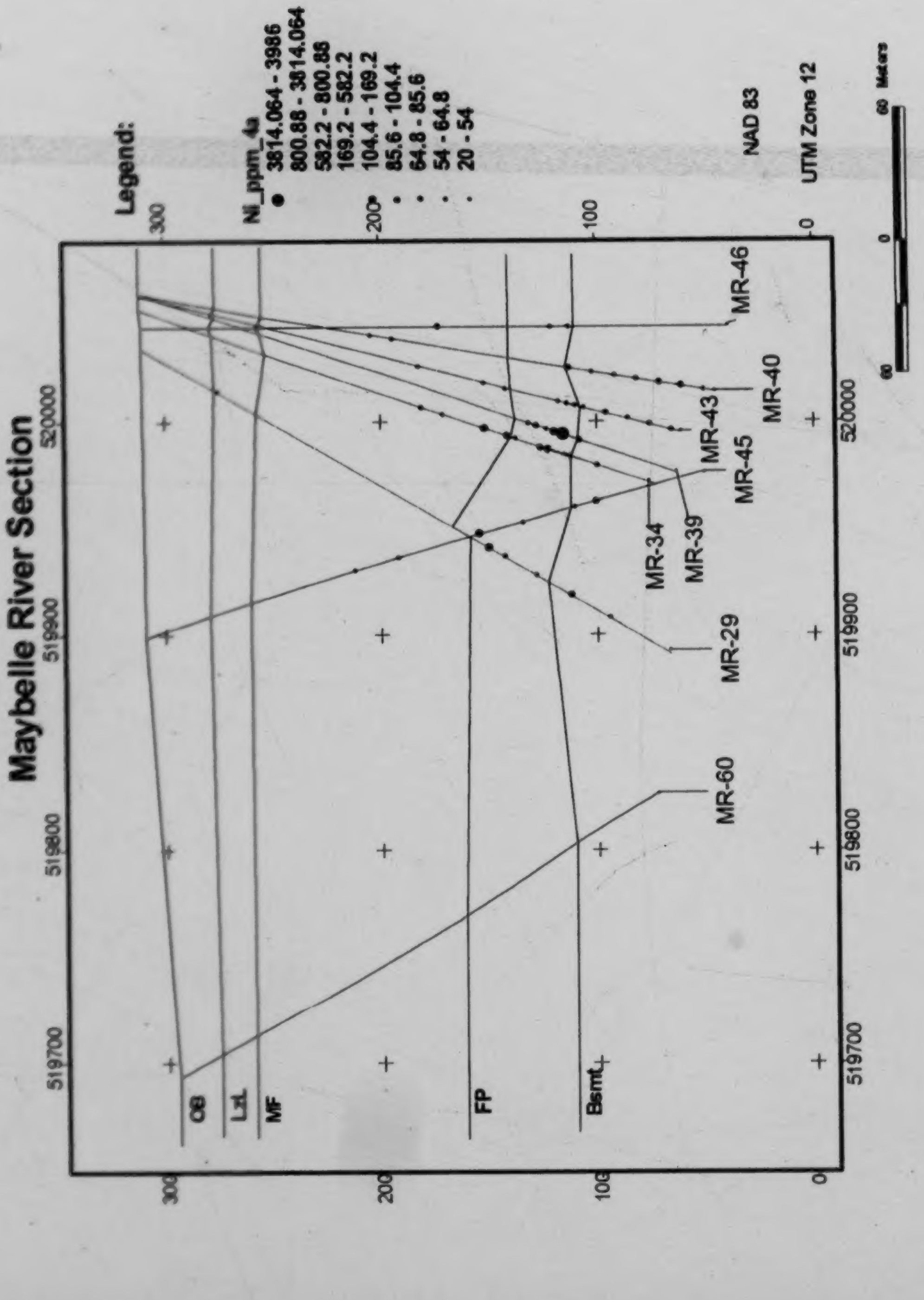
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Nd_ppm_4b
● 44.955 - 296.2
34.74 - 44.955
24.68 - 34.74
17.14 - 24.68
14.12 - 17.14
9.54 - 14.12
7.52 - 9.54
3.8 - 7.52
NAD 83
UTM Zone 12
60
0
60 Meters


Maybelle River Section
Legend:
Ni_ppm_4a
● 3814.064 - 3986
800.88 - 3814.064
582.2 - 800.88
169.2 - 582.2
104.4 - 169.2
85.6 - 104.4
64.8 - 85.6
54 - 64.8
20 - 54
NAD 83
UTM Zone 12
60
0
60 Meters
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
OB
Lxl
MF
FP
Bsmt
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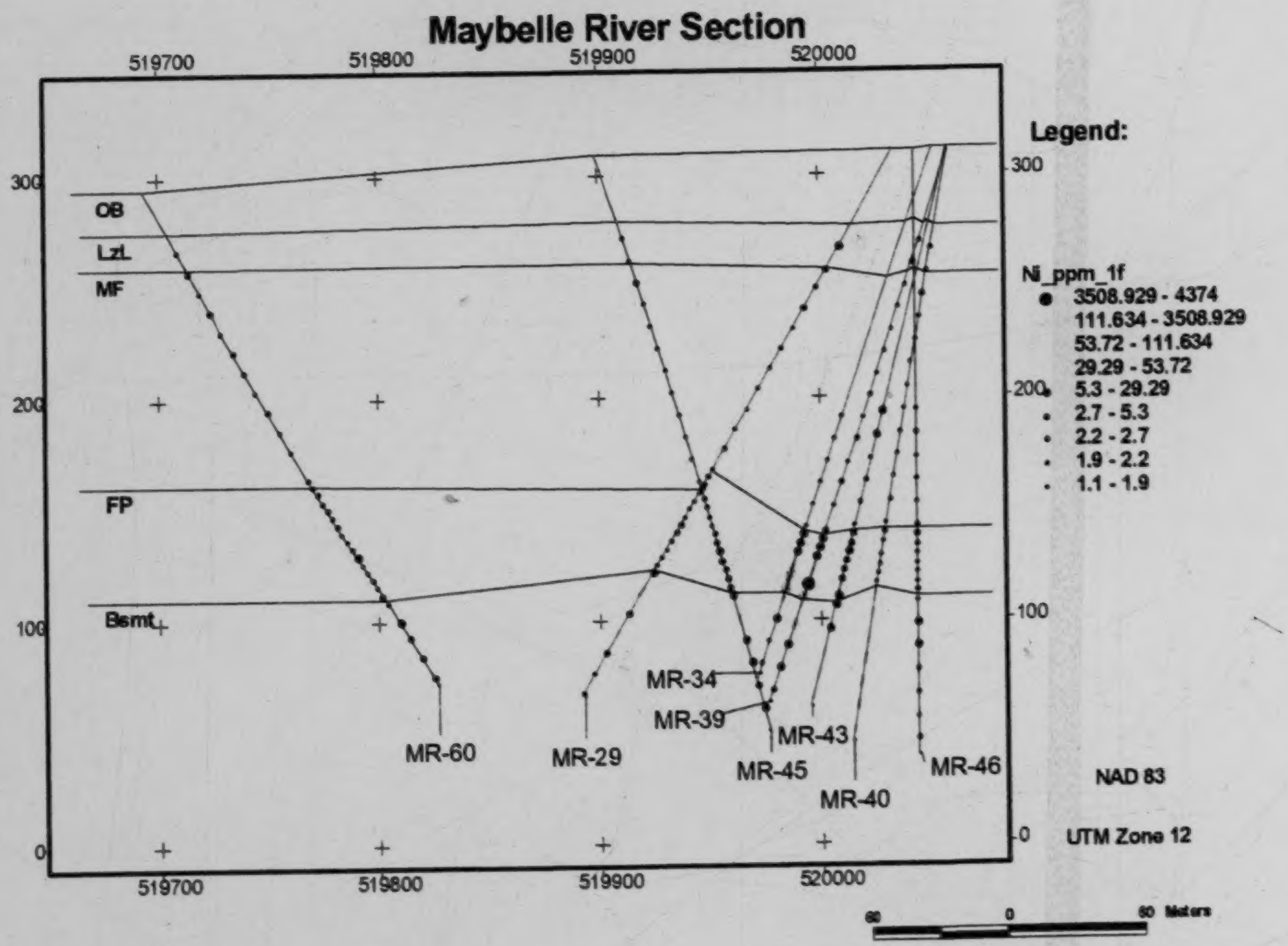
519800
519900
520000
0
100
200
300


Maybelle River Section
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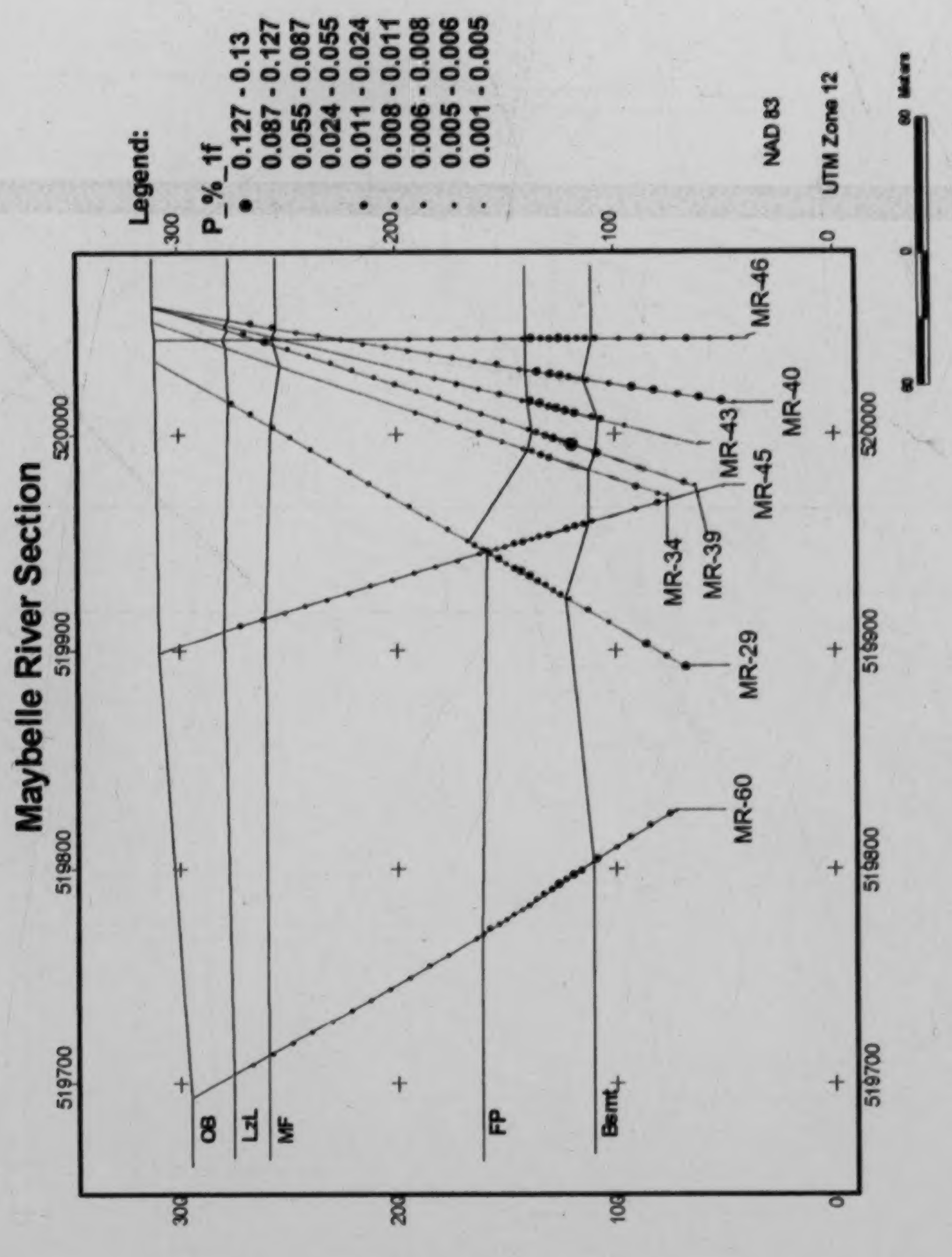
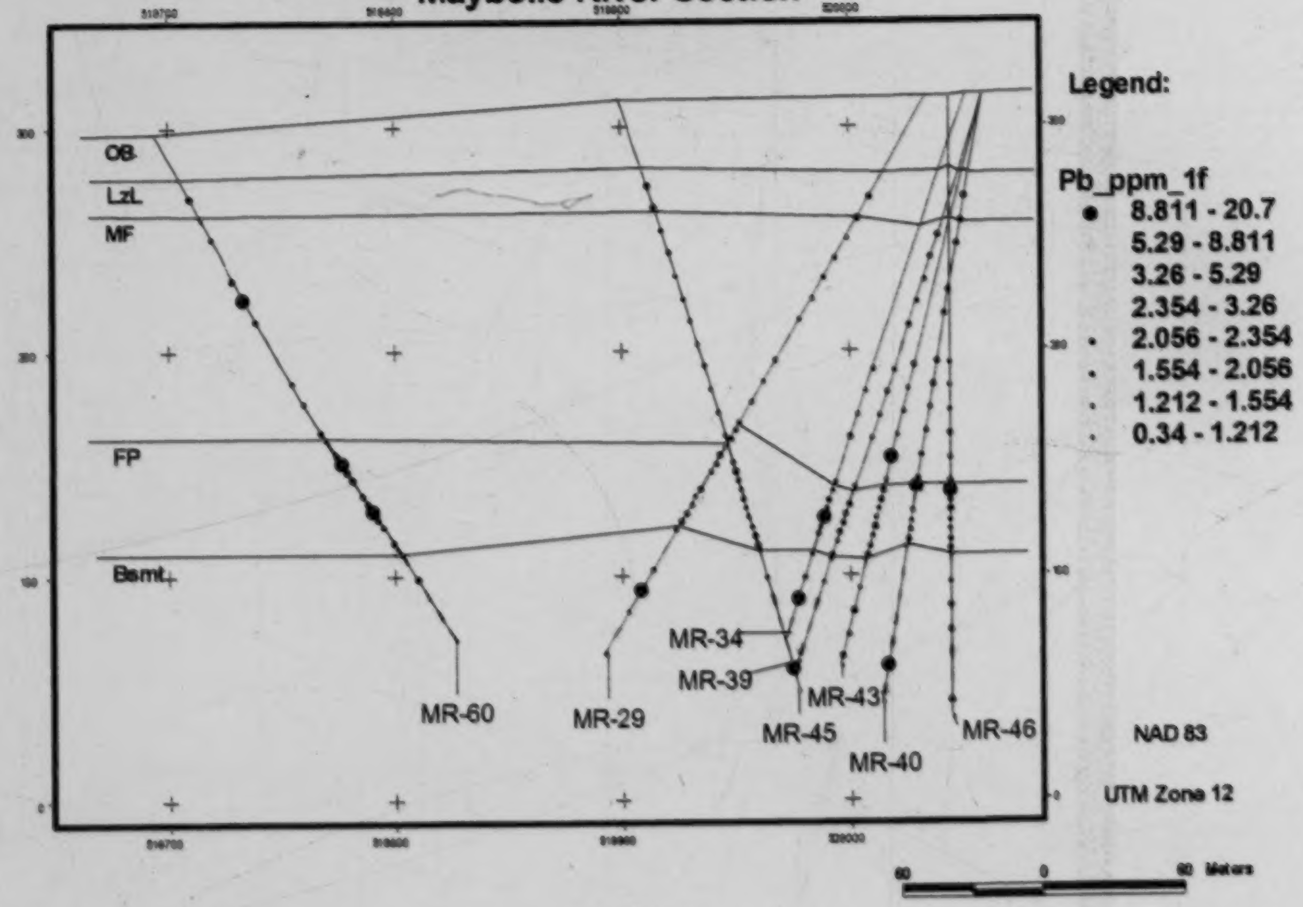
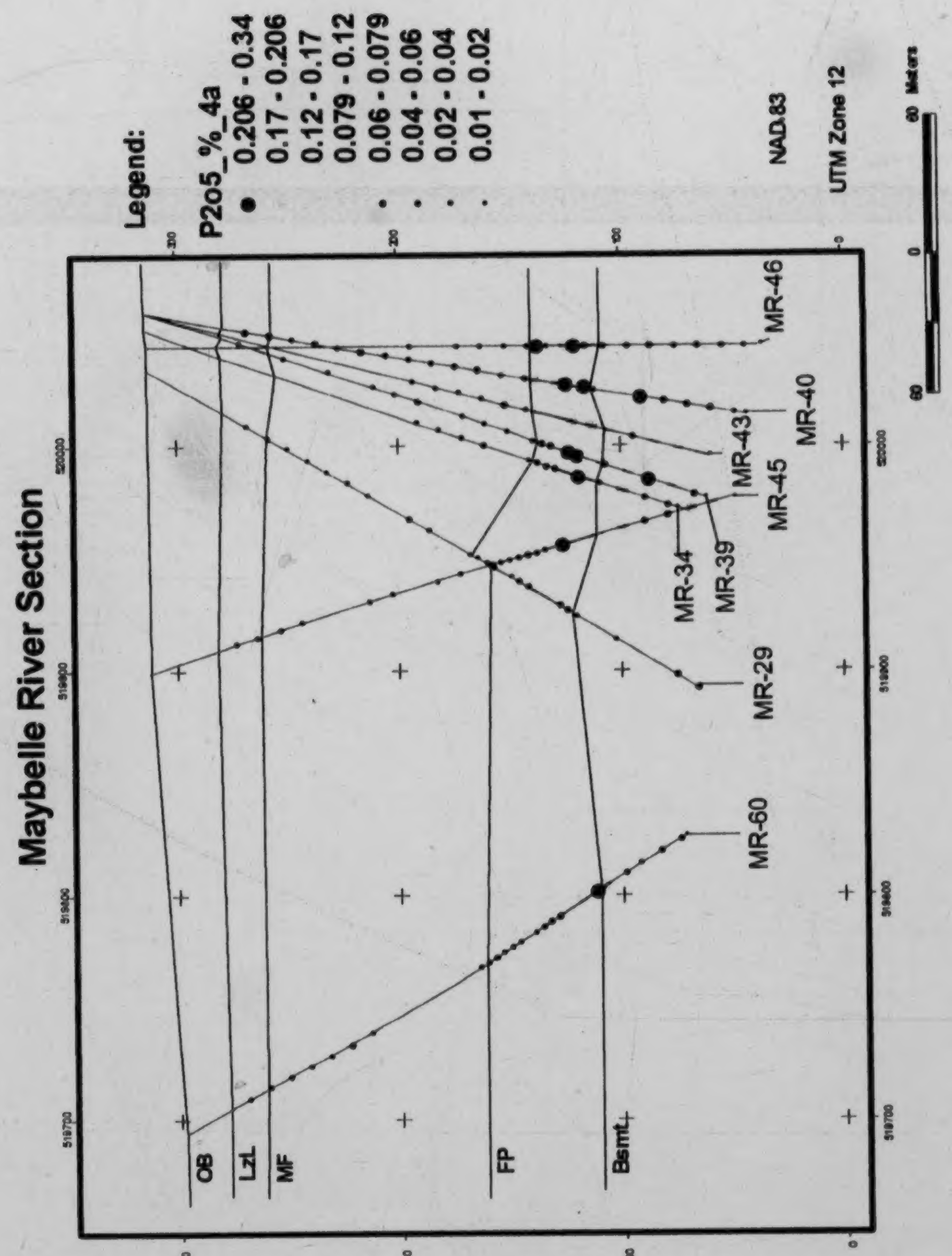
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Ni_ppm_1f
3508.929 - 4374
111.634 - 3508.929
53.72 - 111.634
29.29 - 53.72
5.3 - 29.29
2.7 - 5.3
2.2 - 2.7
1.9 - 2.2
1.1 - 1.9
NAD 83
UTM Zone 12
60
0
60 Meters

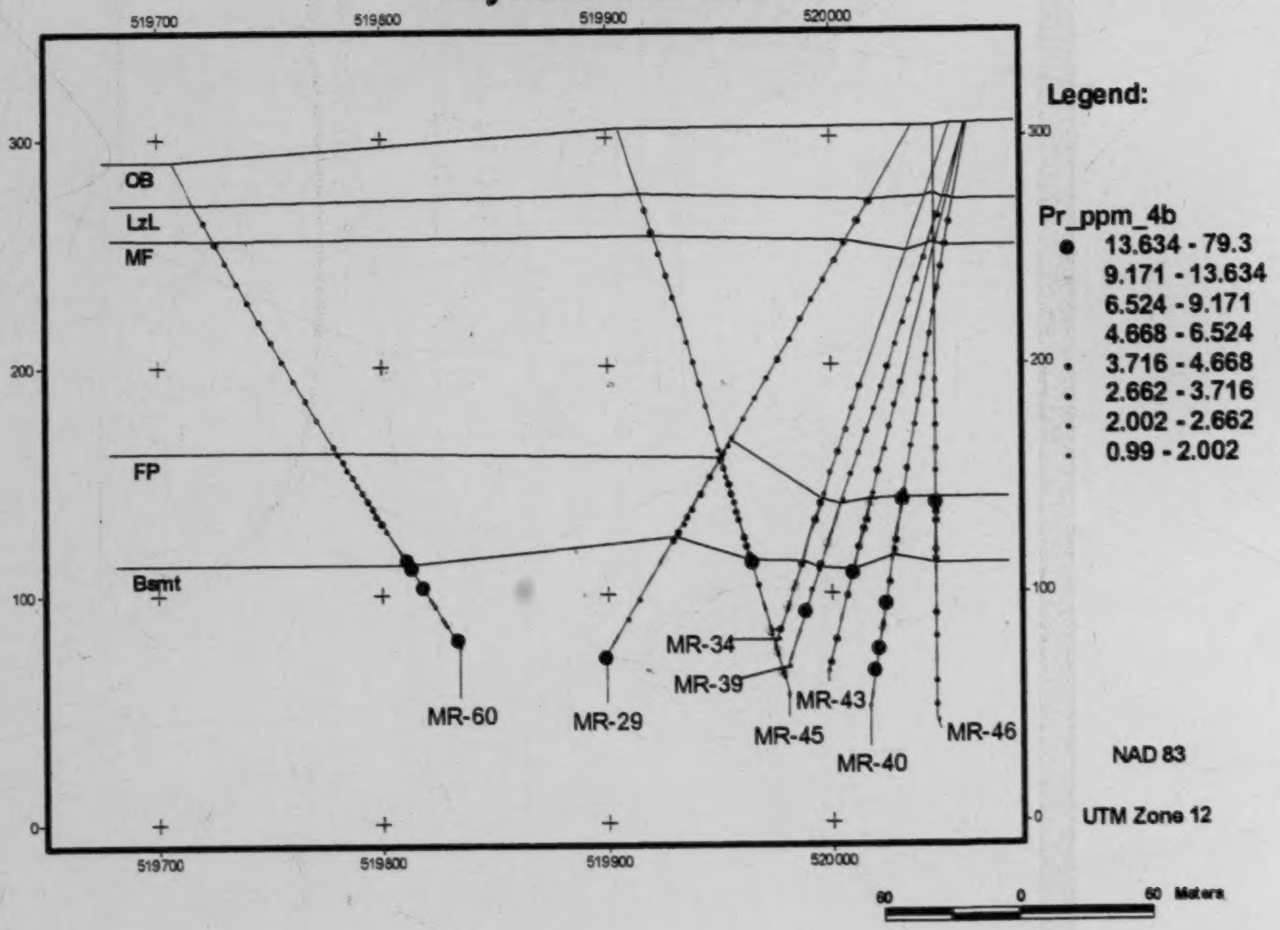

Maybelle River Section
Legend:
P_%_1f
● 0.127 - 0.13
0.087 - 0.127
0.055 - 0.087
0.024 - 0.055
0.011 - 0.024
0.008 - 0.011
0.006 - 0.008
0.005 - 0.006
0.001 - 0.005
NAD 83
UTM Zone 12
0
50
50 Meters
519700
519800
519900
520000
0
100
200
300
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46

Maybelle River Section


OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Pb_ppm_1f
● 8.811 - 20.7
5.29 - 8.811
3.26 - 5.29
2.354 - 3.26
• 2.056 - 2.354
• 1.554 - 2.056
• 1.212 - 1.554
• 0.34 - 1.212
NAD 83
UTM Zone 12
60
0
60 Meters


Maybelle River Section
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
519700
519800
519900
520000
300
200
100
0
Legend:
P2o5_%_4a
● 0.206 - 0.34
● 0.17 - 0.206
• 0.12 - 0.17
• 0.079 - 0.12
• 0.06 - 0.079
• 0.04 - 0.06
• 0.02 - 0.04
• 0.01 - 0.02
NAD83
UTM Zone 12
60
0
60 Meters

Maybelle River Section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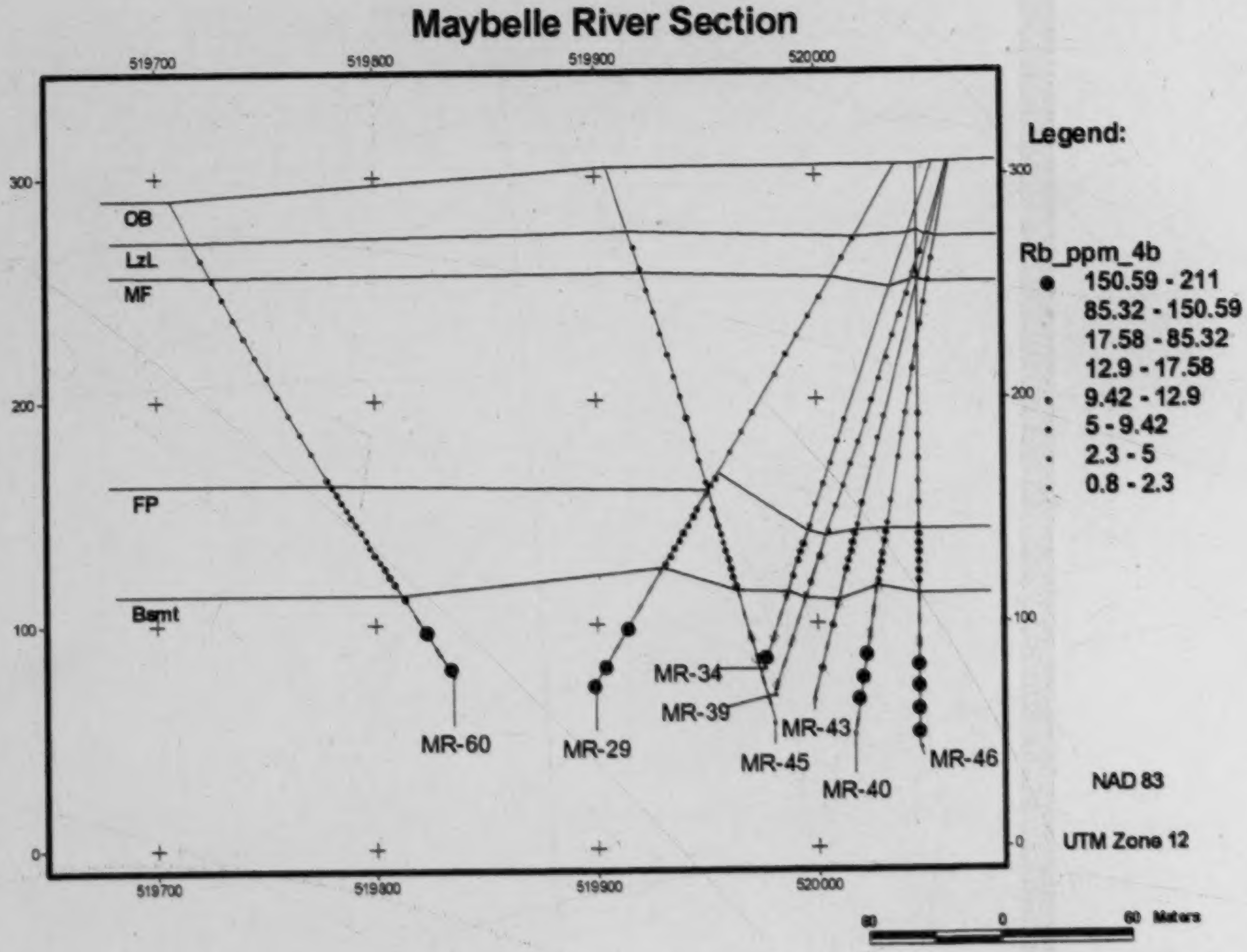
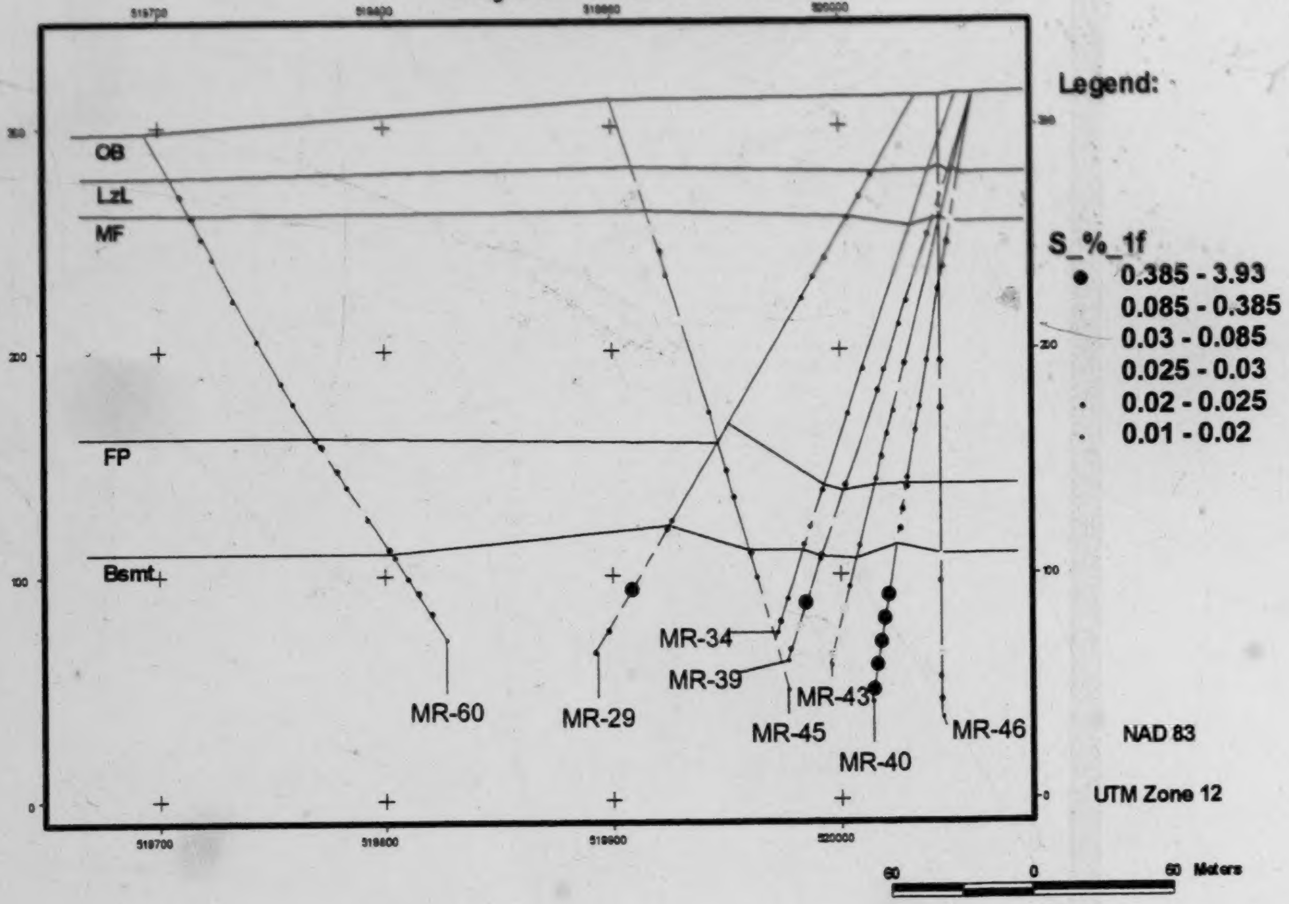
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Pr_ppm_4b
● 13.634 - 79.3
9.171 - 13.634
6.524 - 9.171
4.668 - 6.524
• 3.716 - 4.668
• 2.662 - 3.716
• 2.002 - 2.662
• 0.99 - 2.002
NAD 83
UTM Zone 12
60
0
60 Meters


Maybelle River Section
519700
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Rb_ppm_4b
● 150.59 - 211
85.32 - 150.59
17.58 - 85.32
12.9 - 17.58
• 9.42 - 12.9
• 5 - 9.42
• 2.3 - 5
• 0.8 - 2.3
NAD 83
UTM Zone 12
80
0
80 Meters

Maybelle River Section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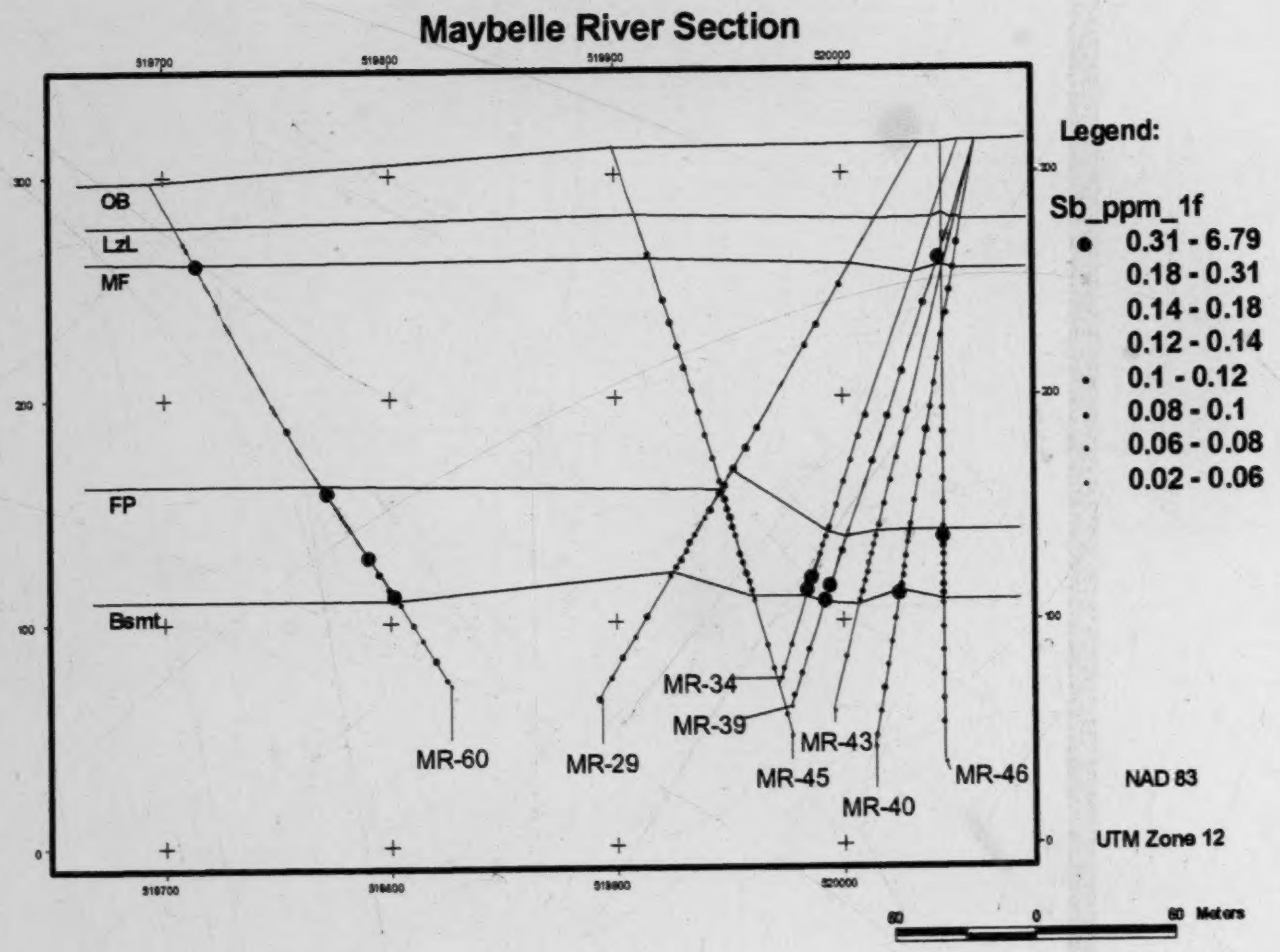
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
S_%_1f
● 0.385 - 3.93
0.085 - 0.385
0.03 - 0.085
0.025 - 0.03
· 0.02 - 0.025
· 0.01 - 0.02
NAD 83
UTM Zone 12
60
0
60 Meters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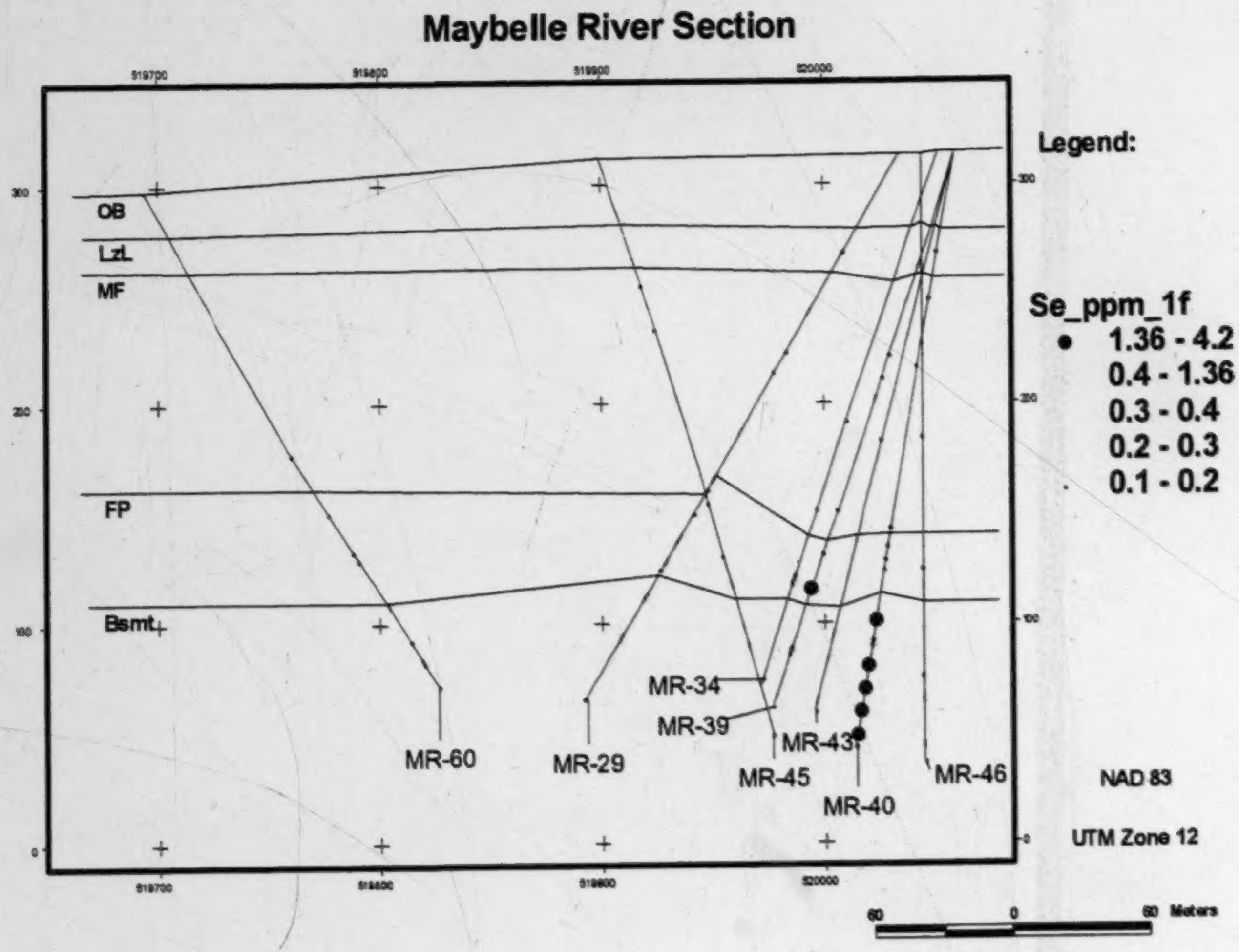
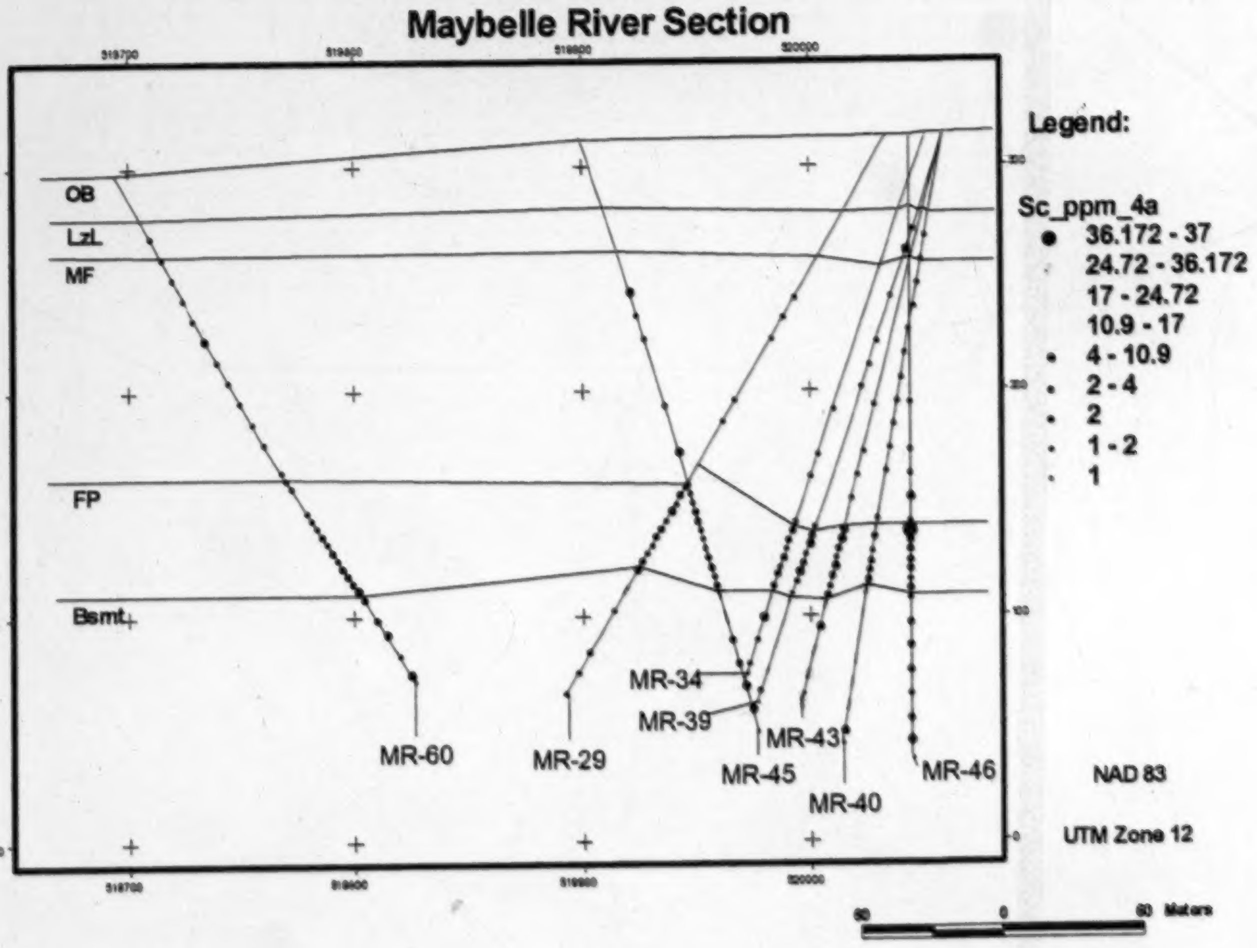
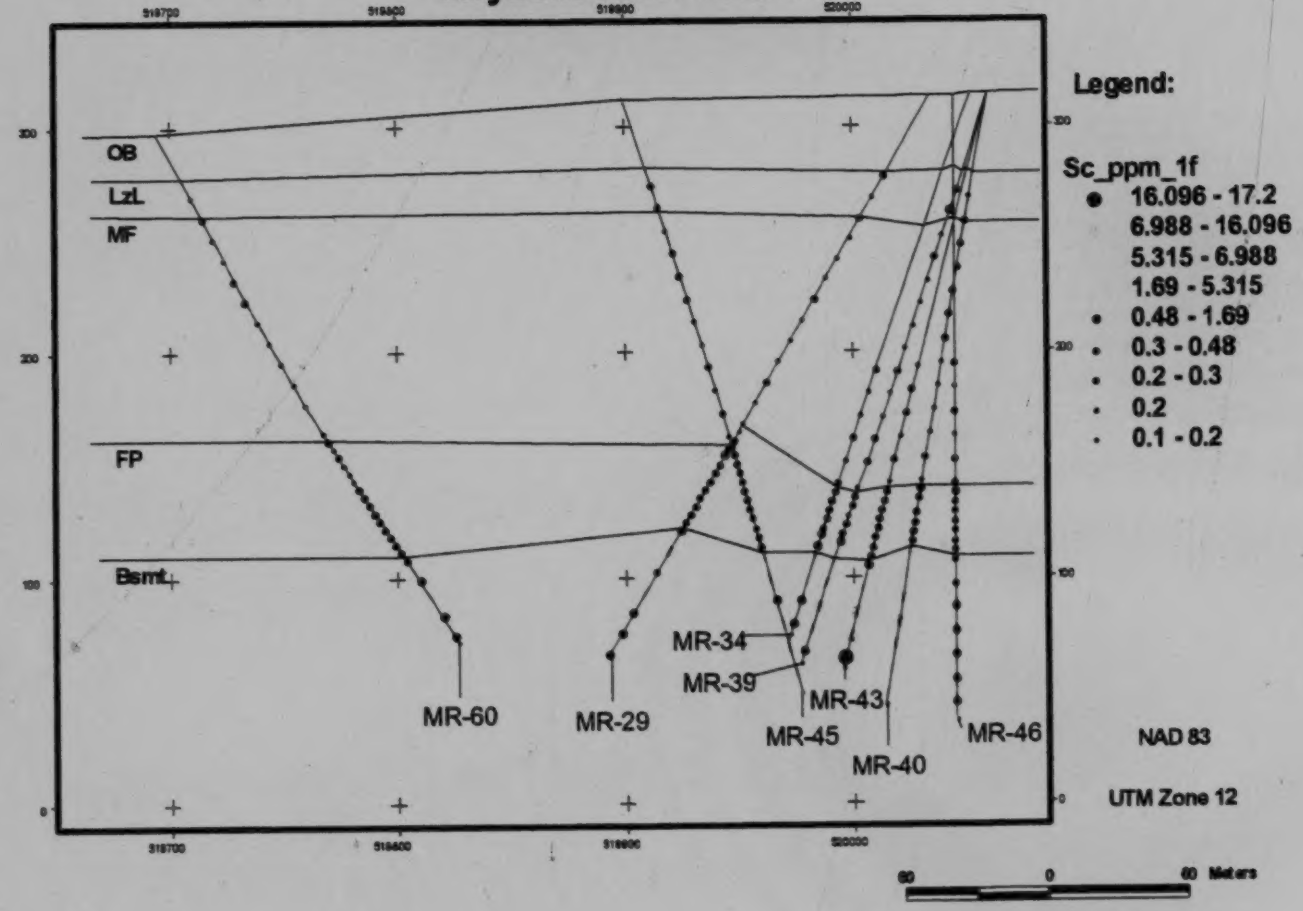
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Sb_ppm_1f
● 0.31 - 6.79
0.18 - 0.31
0.14 - 0.18
0.12 - 0.14
• 0.1 - 0.12
• 0.08 - 0.1
• 0.06 - 0.08
• 0.02 - 0.06
NAD 83
UTM Zone 12
60
0
60 Meters


Maybelle River Section
519700
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Se_ppm_1f
● 1.36 - 4.2
0.4 - 1.36
0.3 - 0.4
0.2 - 0.3
0.1 - 0.2
NAD 83
UTM Zone 12
60
0
60 Meters



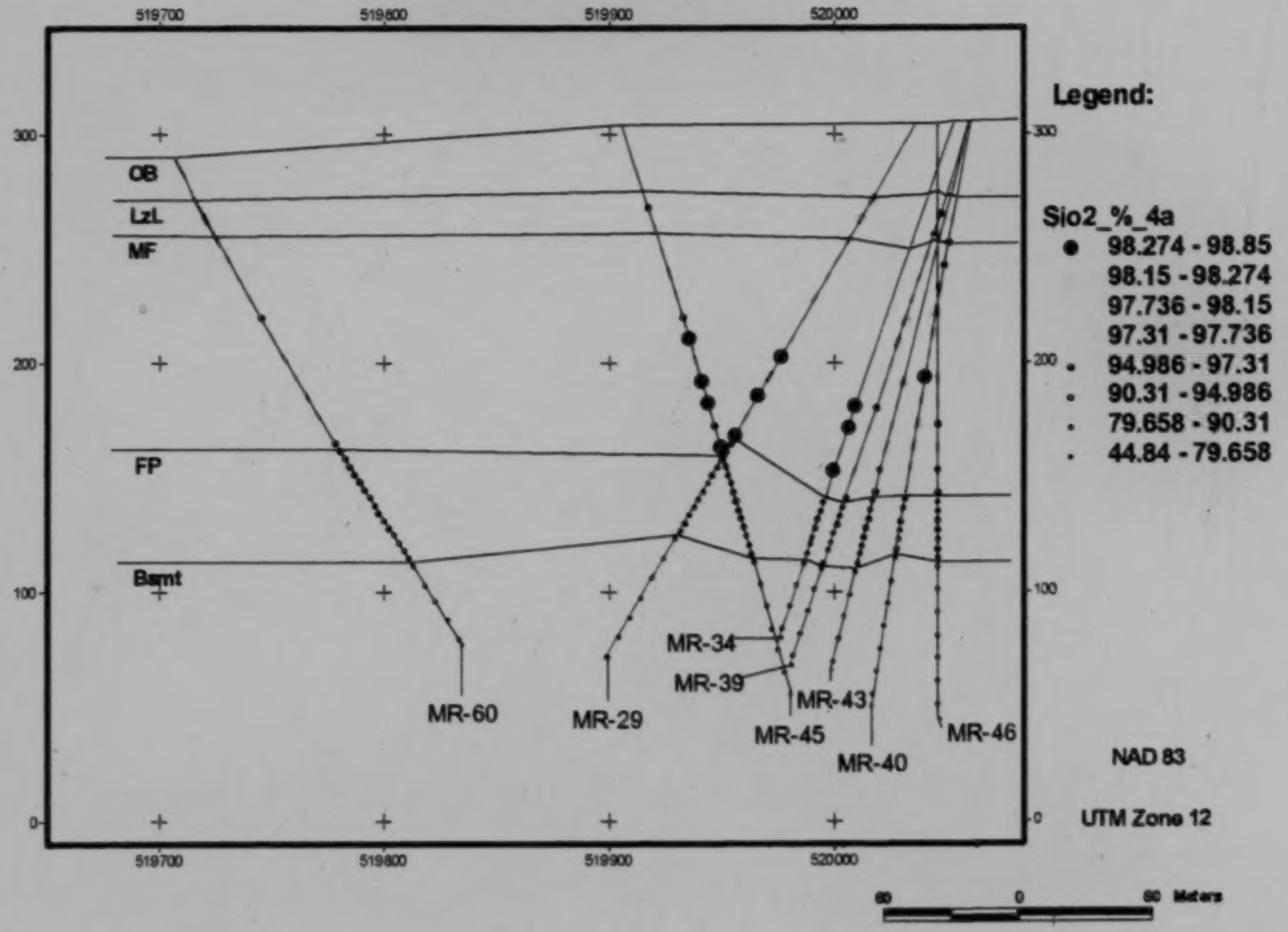
Maybelle River Section

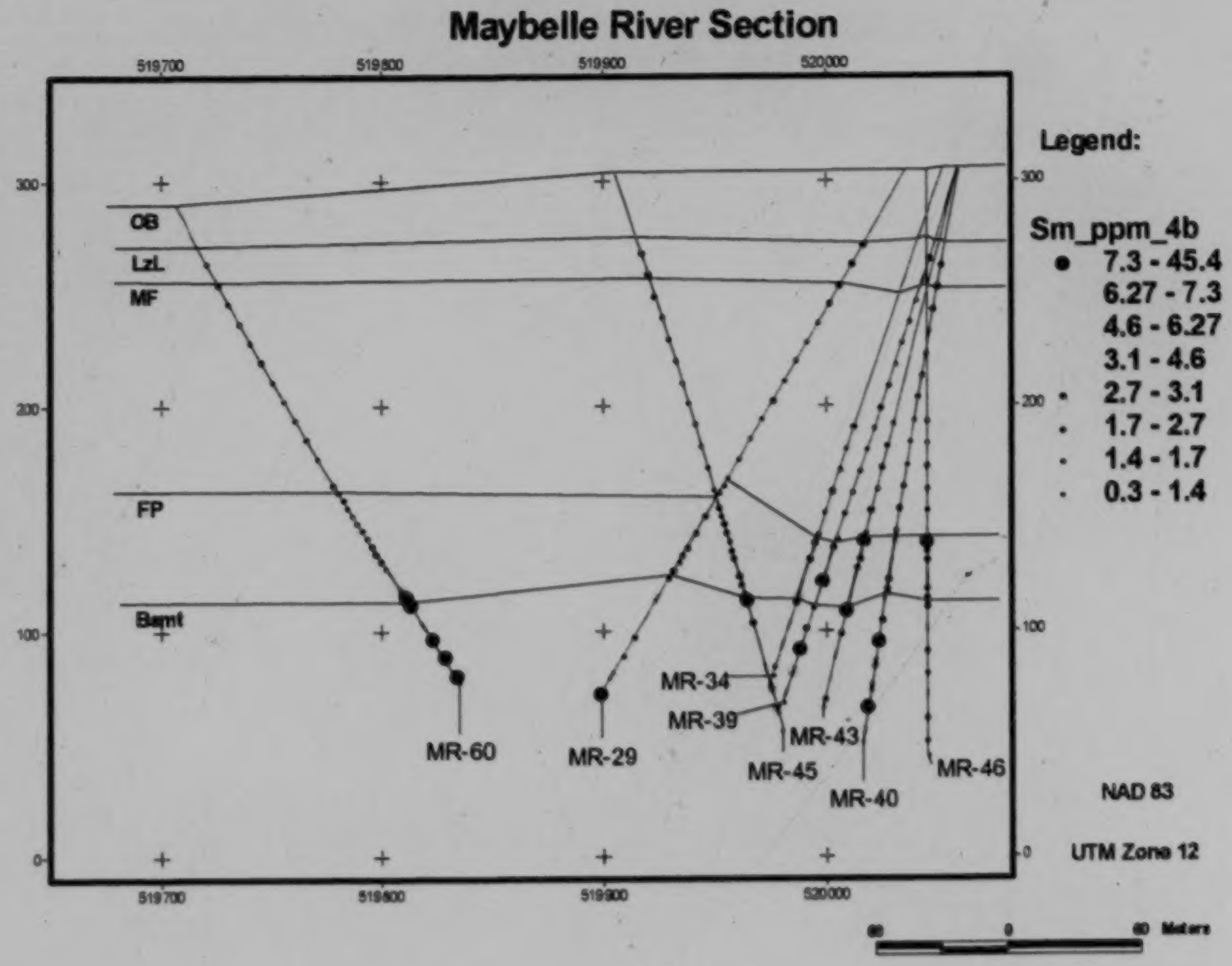


Maybelle River Section

519700
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt.
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Sc_ppm_1f
16.096 - 17.2
6.988 - 16.096
5.315 - 6.988
1.69 - 5.315
0.48 - 1.69
0.3 - 0.48
0.2 - 0.3
0.2
0.1 - 0.2
NAD 83
UTM Zone 12
60
0
60 Meters

Maybelle River Section




Maybelle River Section
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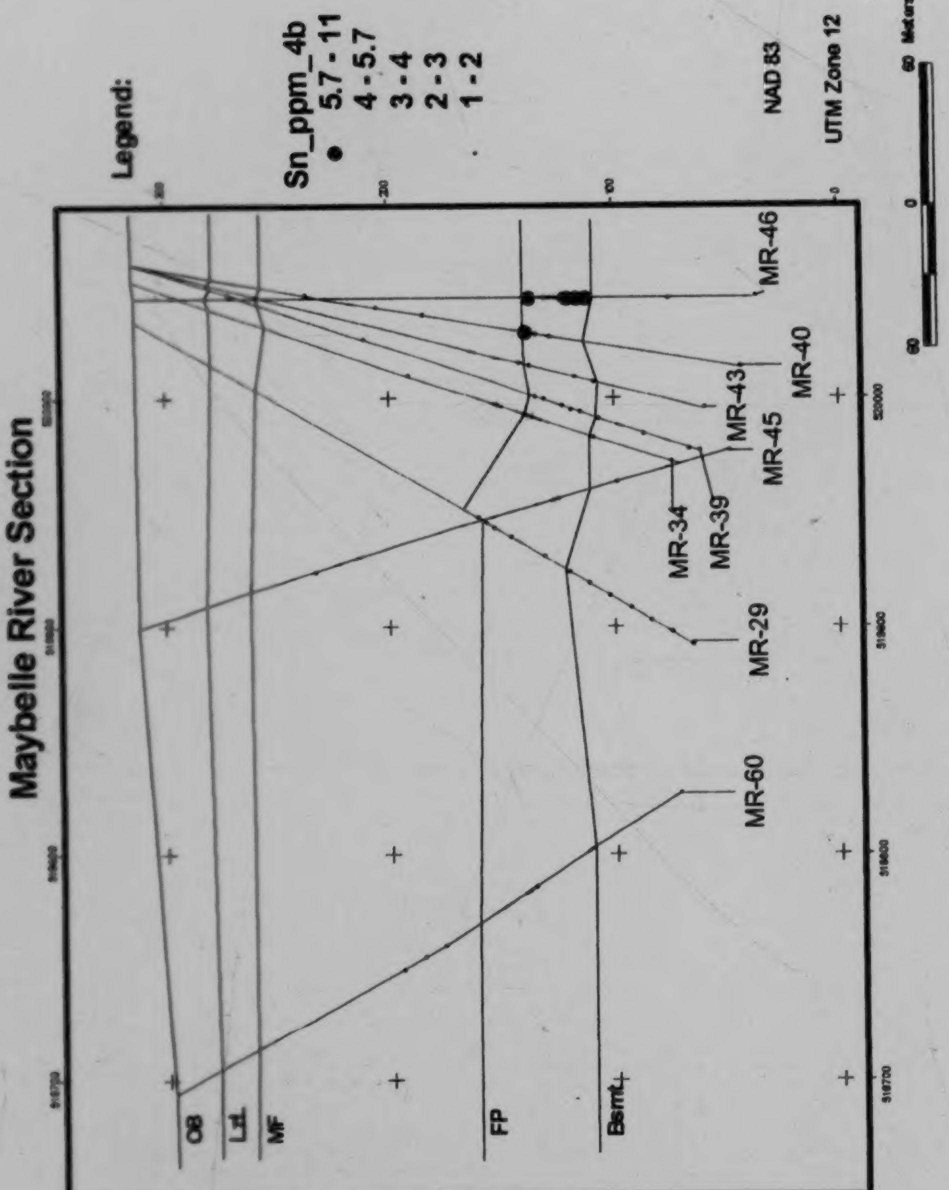
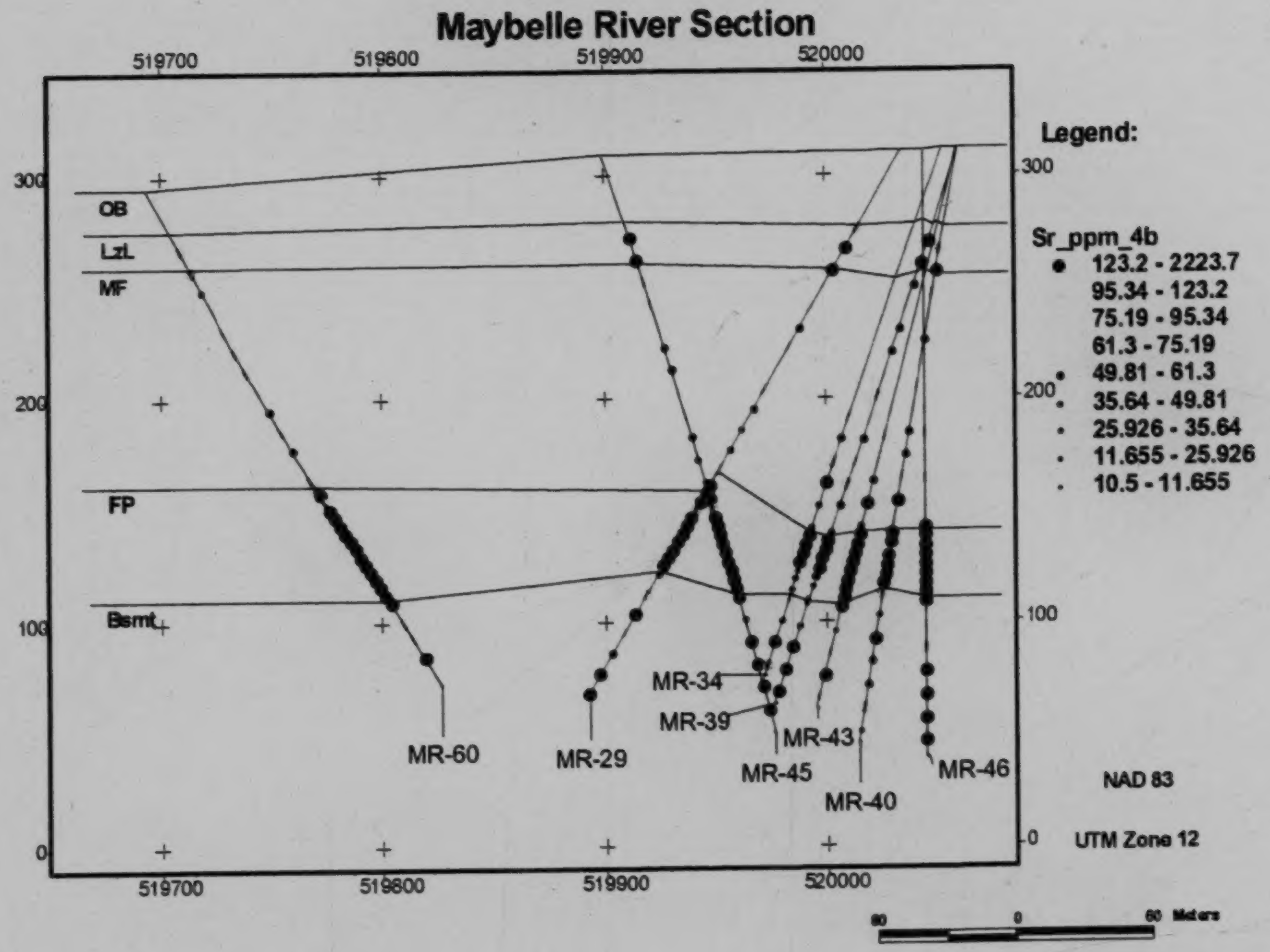
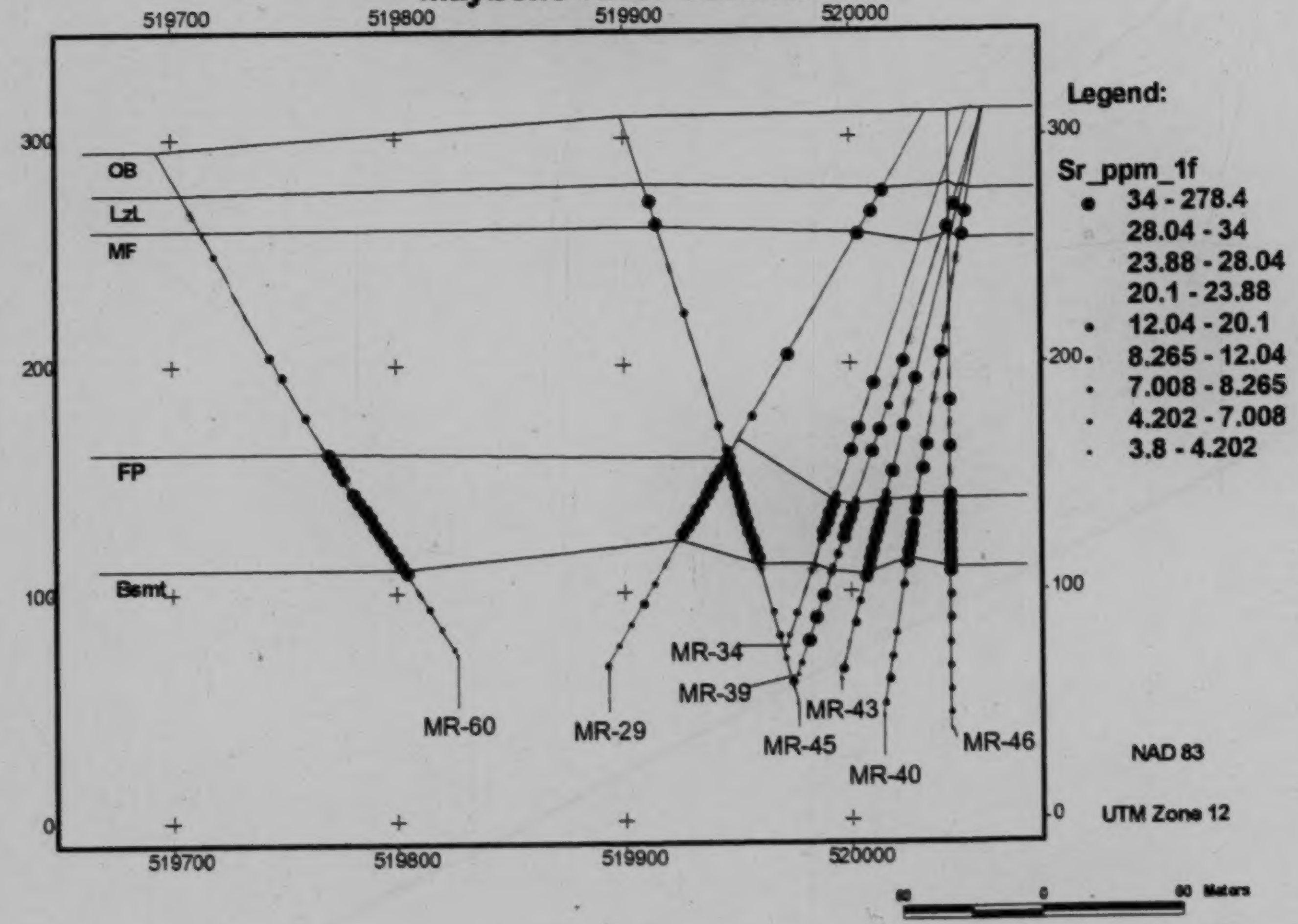
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Sm_ppm_4b
● 7.3 - 45.4
6.27 - 7.3
4.6 - 6.27
3.1 - 4.6
• 2.7 - 3.1
• 1.7 - 2.7
· 1.4 - 1.7
· 0.3 - 1.4
NAD 83
UTM Zone 12
80
0
80 Meters

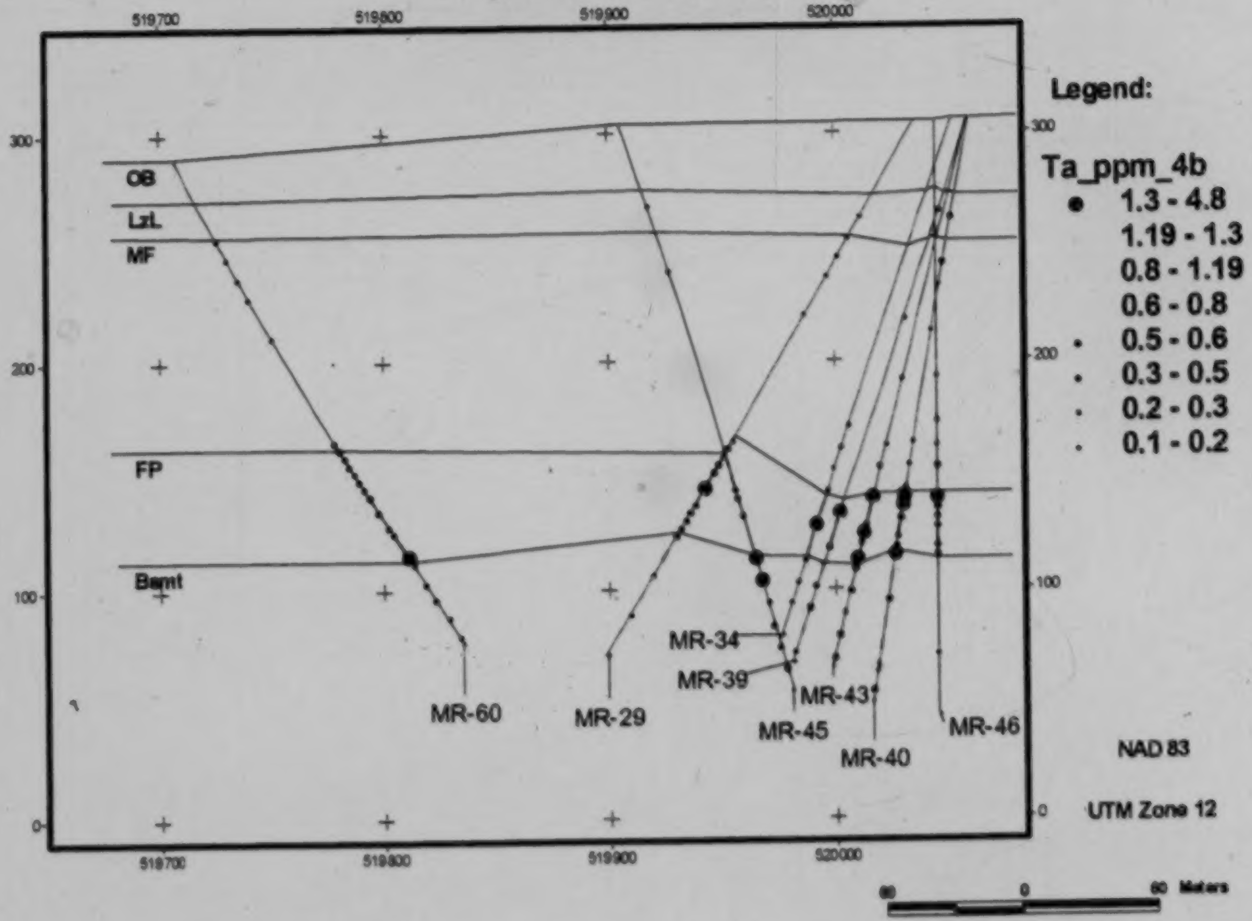

Maybelle River Section
Legend:
Sn_ppm_4b
● 5.7 - 11
4 - 5.7
3 - 4
2 - 3
1 - 2
NAD 83
UTM Zone 12
60
0
60 Meters
OB
Ld
MF
FP
Bsmt
MR-46
MR-40
MR-43
MR-45
MR-34
MR-39
MR-29
MR-60
300
200
100
0
519700
519800
519900
520000


Maybelle River Section
519700
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Sr_ppm_4b
● 123.2 - 2223.7
95.34 - 123.2
75.19 - 95.34
61.3 - 75.19
• 49.81 - 61.3
• 35.64 - 49.81
• 25.926 - 35.64
• 11.655 - 25.926
• 10.5 - 11.655
NAD 83
UTM Zone 12
60
0
60 Meters

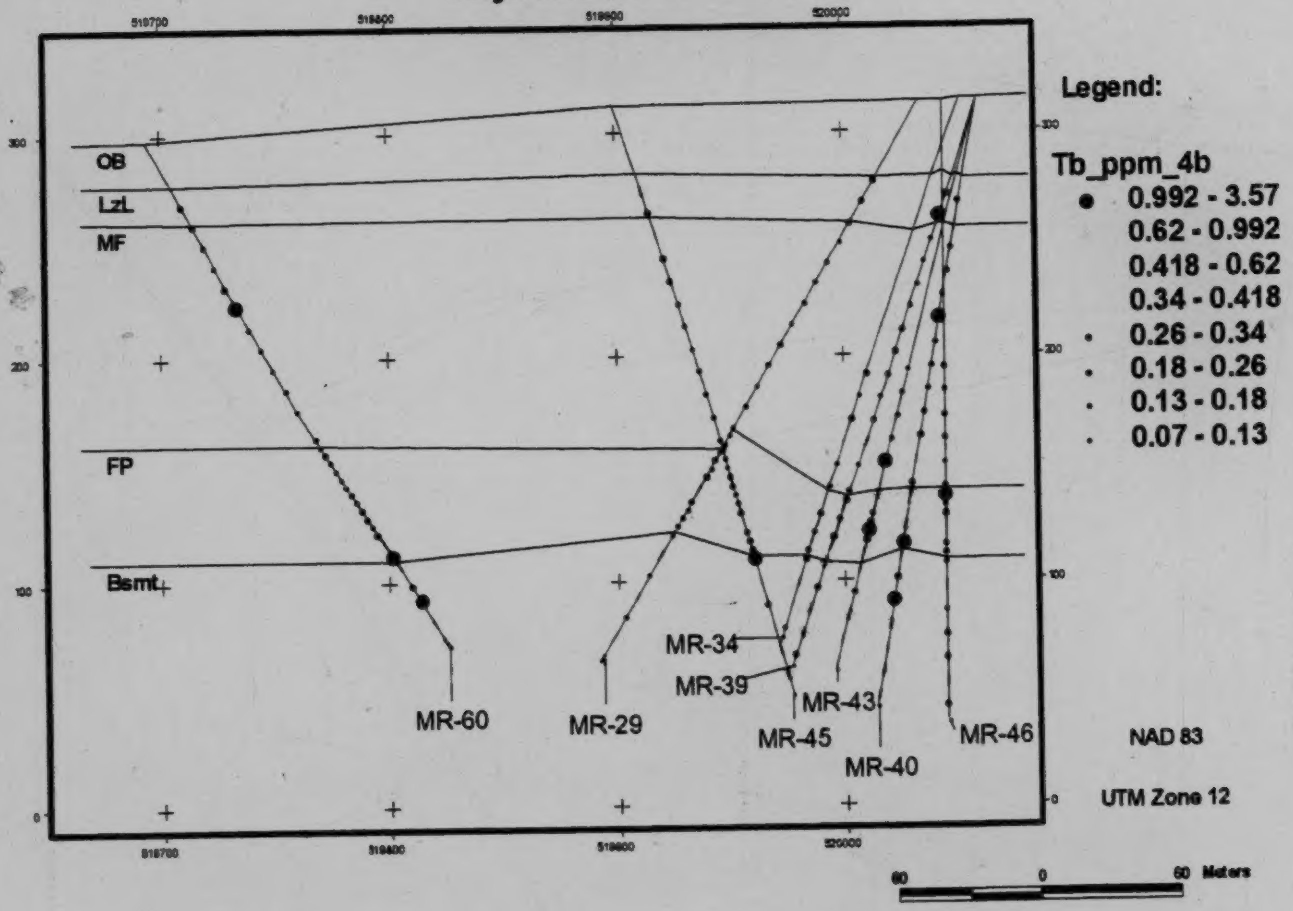
Maybelle River Section


519700
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Sr_ppm_1f
● 34 - 278.4
28.04 - 34
23.88 - 28.04
20.1 - 23.88
• 12.04 - 20.1
• 8.265 - 12.04
• 7.008 - 8.265
• 4.202 - 7.008
• 3.8 - 4.202
NAD 83
UTM Zone 12
60
0
60 Meters

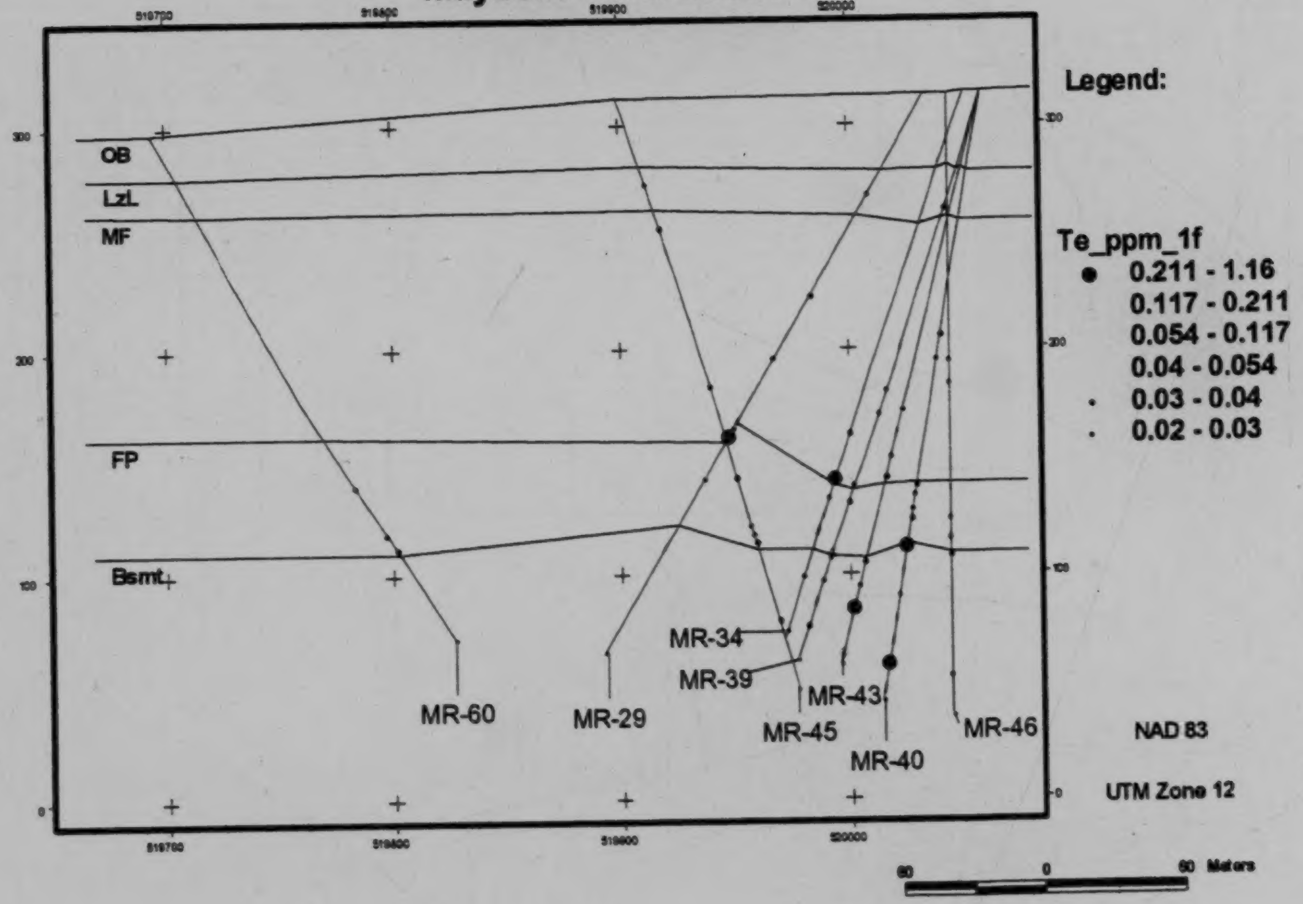
Maybelle River Section

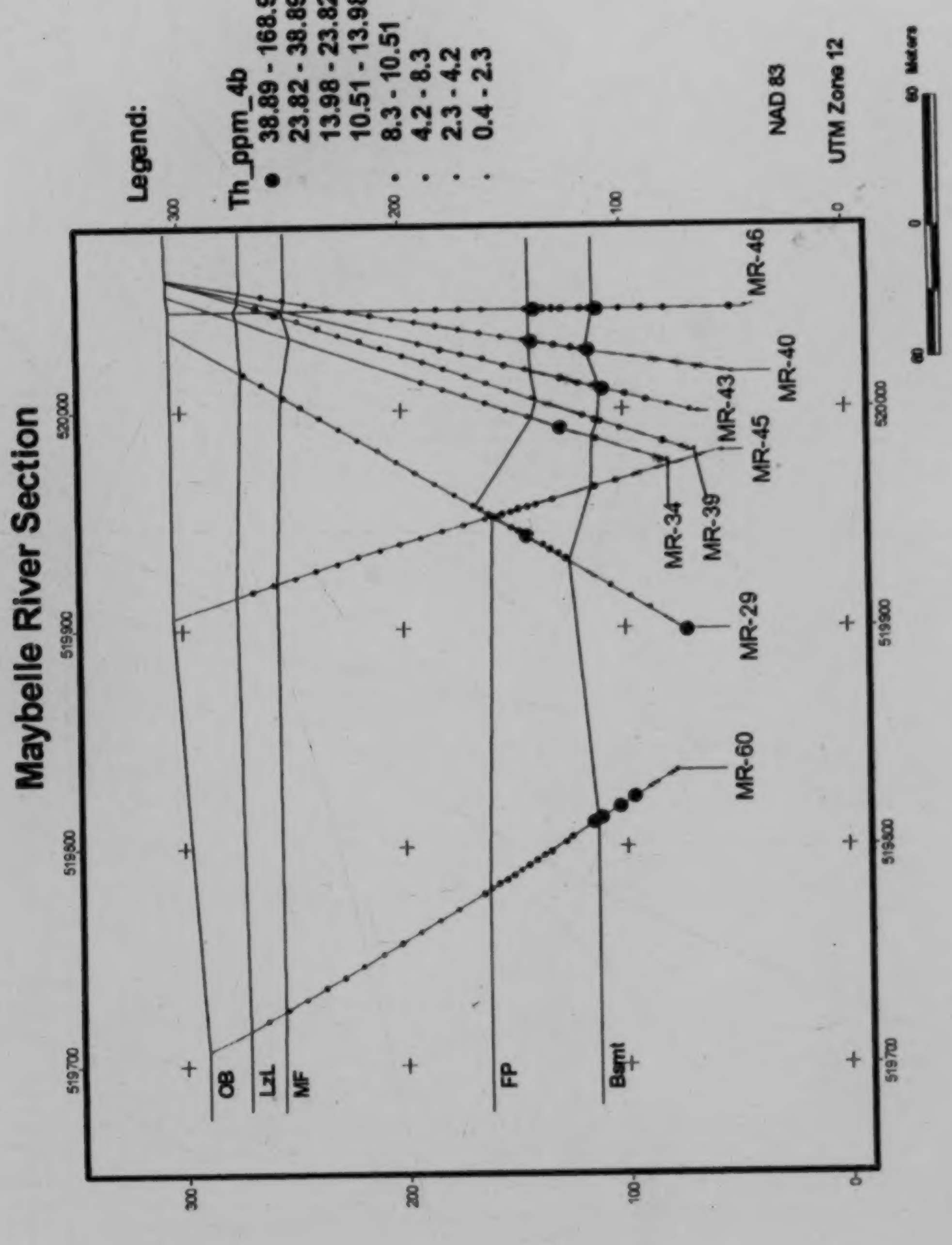


Maybelle River Section



Maybelle River Section

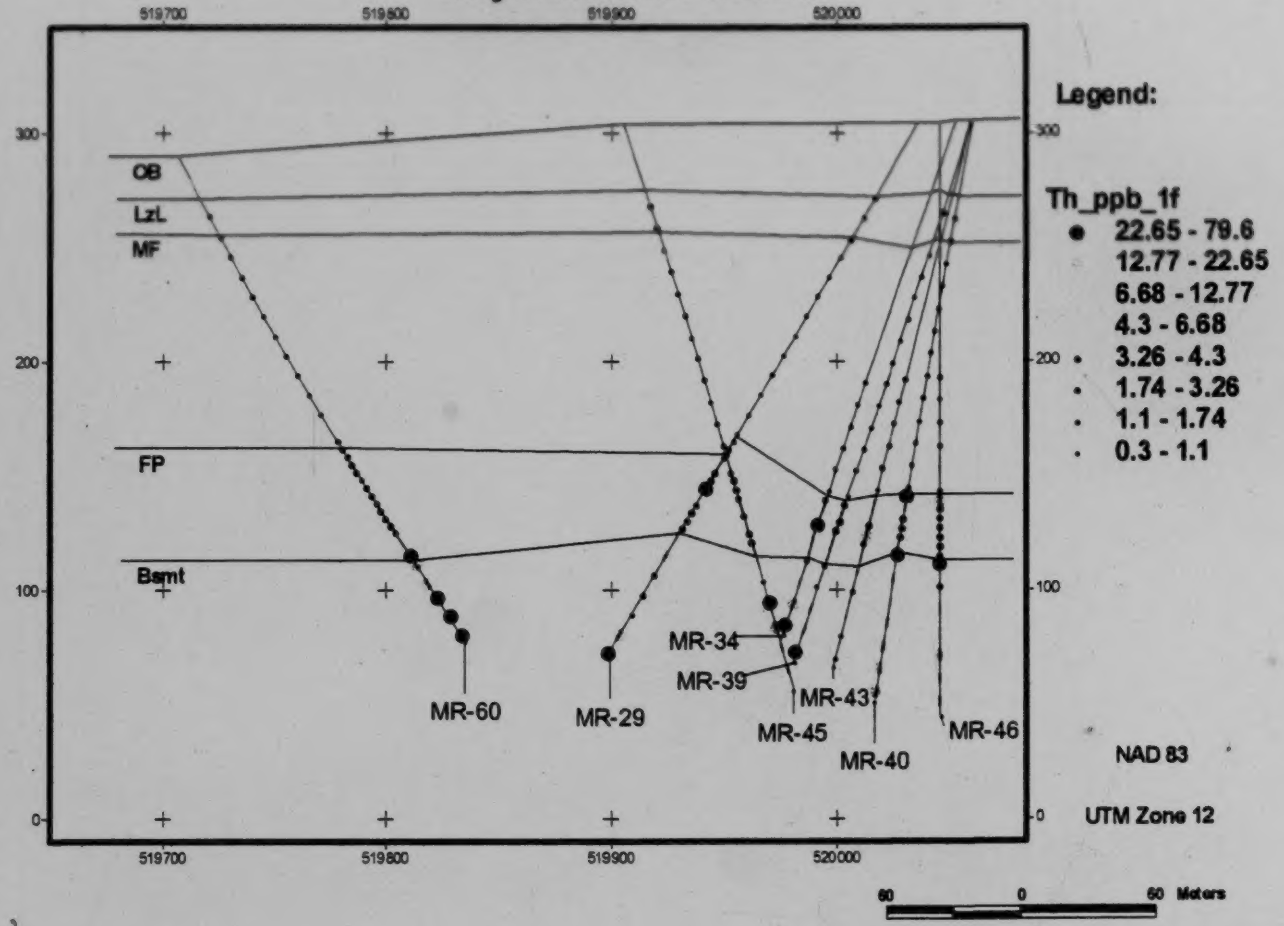


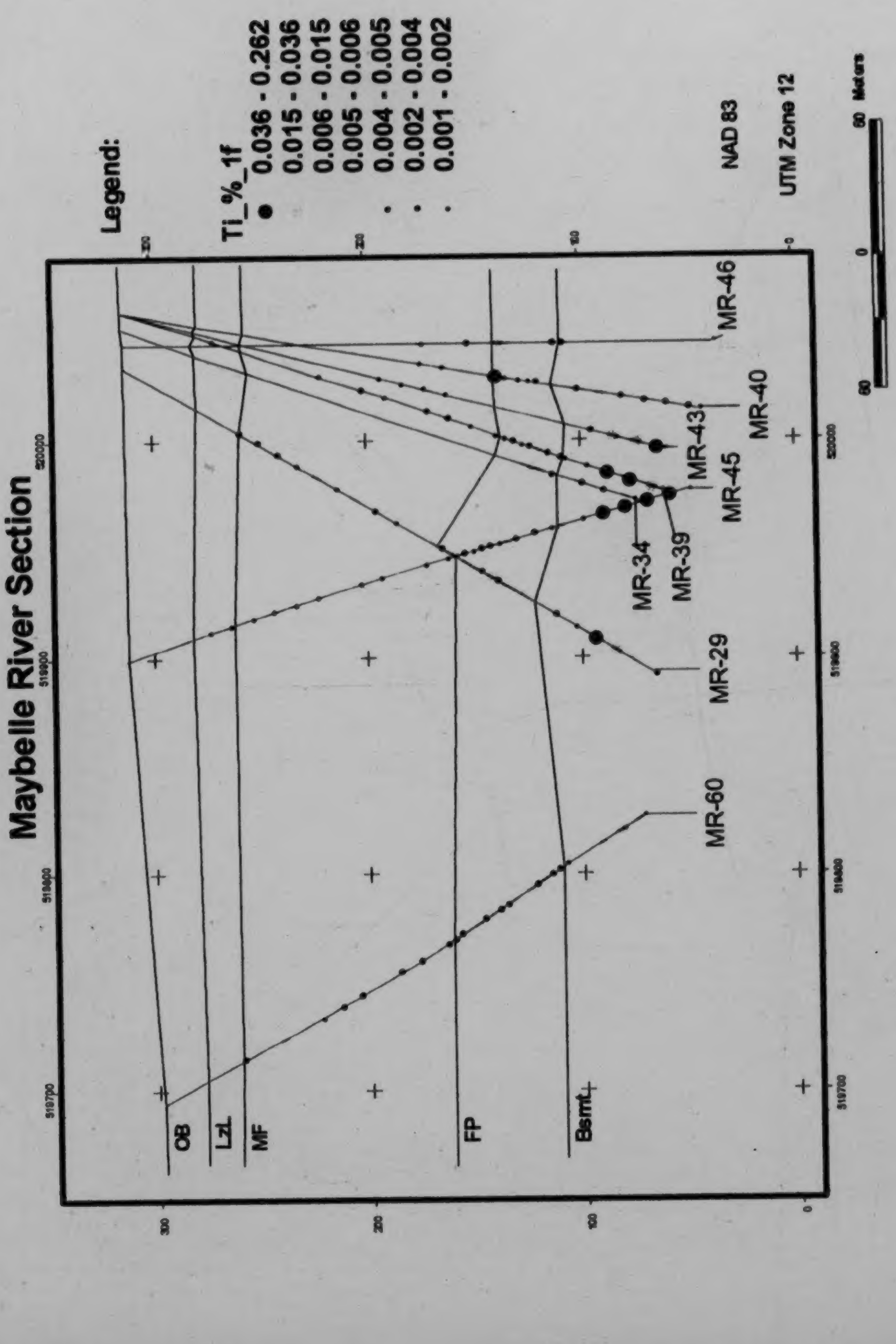


Maybelle River Section

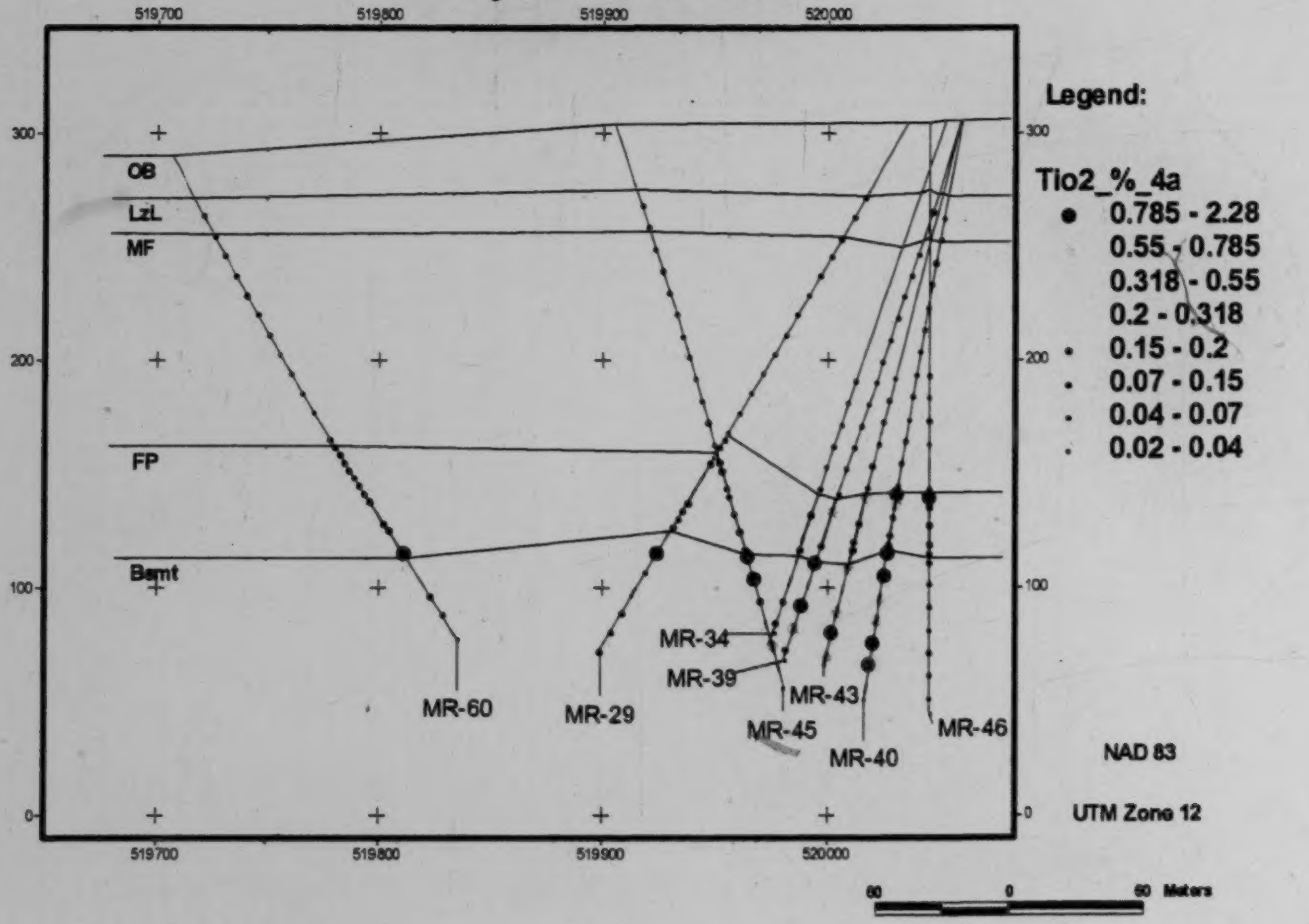
Legend:
Th_ppm_4b
● 38.89 - 168.9
● 23.82 - 38.89
● 13.98 - 23.82
● 10.51 - 13.98
• 8.3 - 10.51
• 4.2 - 8.3
· 2.3 - 4.2
· 0.4 - 2.3
NAD 83
UTM Zone 12
60
0
60 Meters
OB
LzL
MF
FP
Bsmt
MR-46
MR-40
MR-43
MR-45
MR-34
MR-39
MR-29
MR-60
519700
519800
519900
520000
300
200
100
0

Maybelle River Section

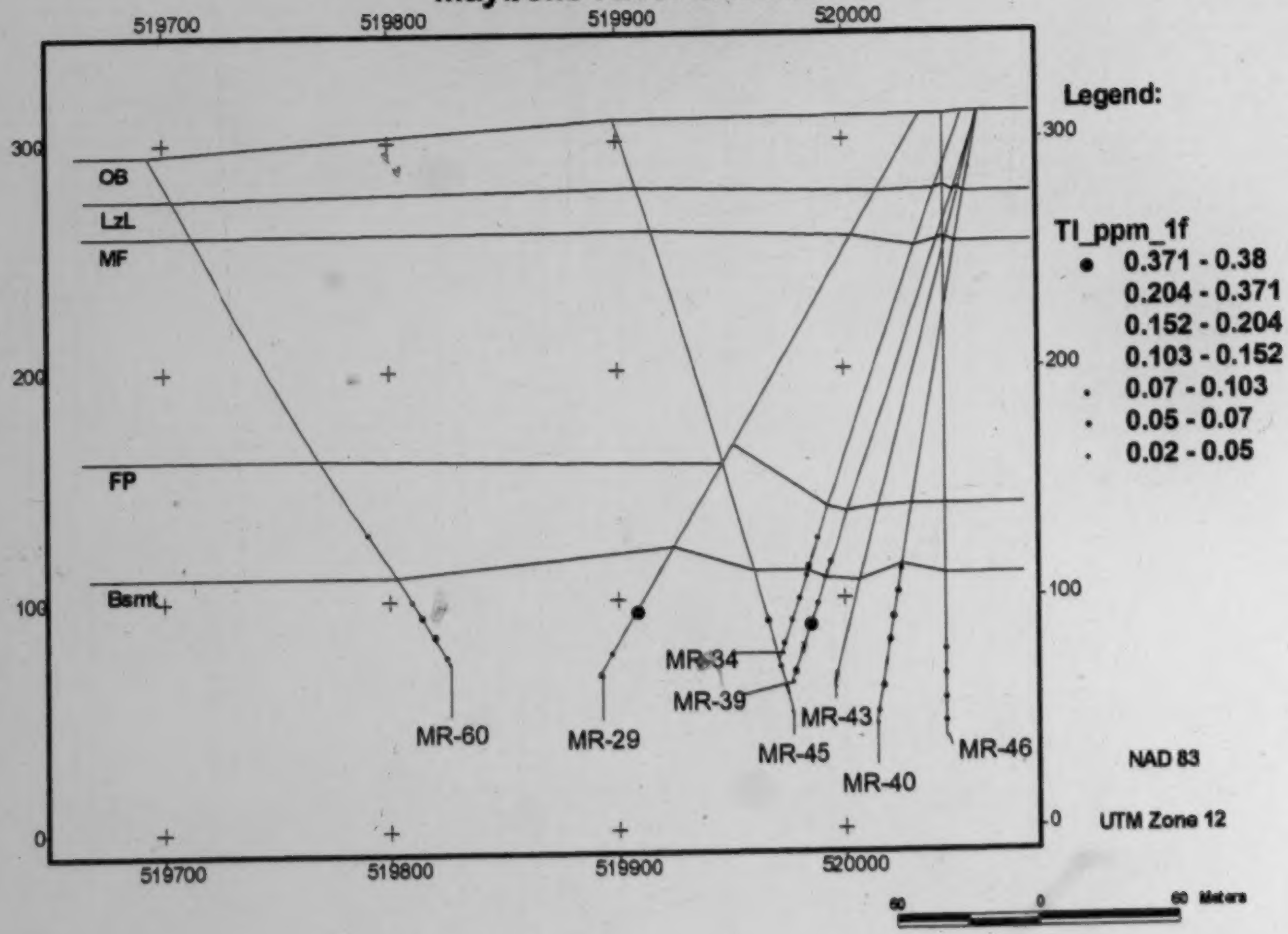

519700
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Th_ppb_1f
● 22.65 - 79.6
12.77 - 22.65
6.68 - 12.77
4.3 - 6.68
• 3.26 - 4.3
• 1.74 - 3.26
• 1.1 - 1.74
• 0.3 - 1.1
NAD 83
UTM Zone 12
60
0
60 Meters


Maybelle River Section
Legend:
Ti_%_1f
● 0.036 - 0.262
● 0.015 - 0.036
● 0.006 - 0.015
● 0.005 - 0.006
● 0.004 - 0.005
● 0.002 - 0.004
● 0.001 - 0.002
NAD 83
UTM Zone 12
50
0
50 Meters
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
519700
519800
519900
520000
300
200
100
0

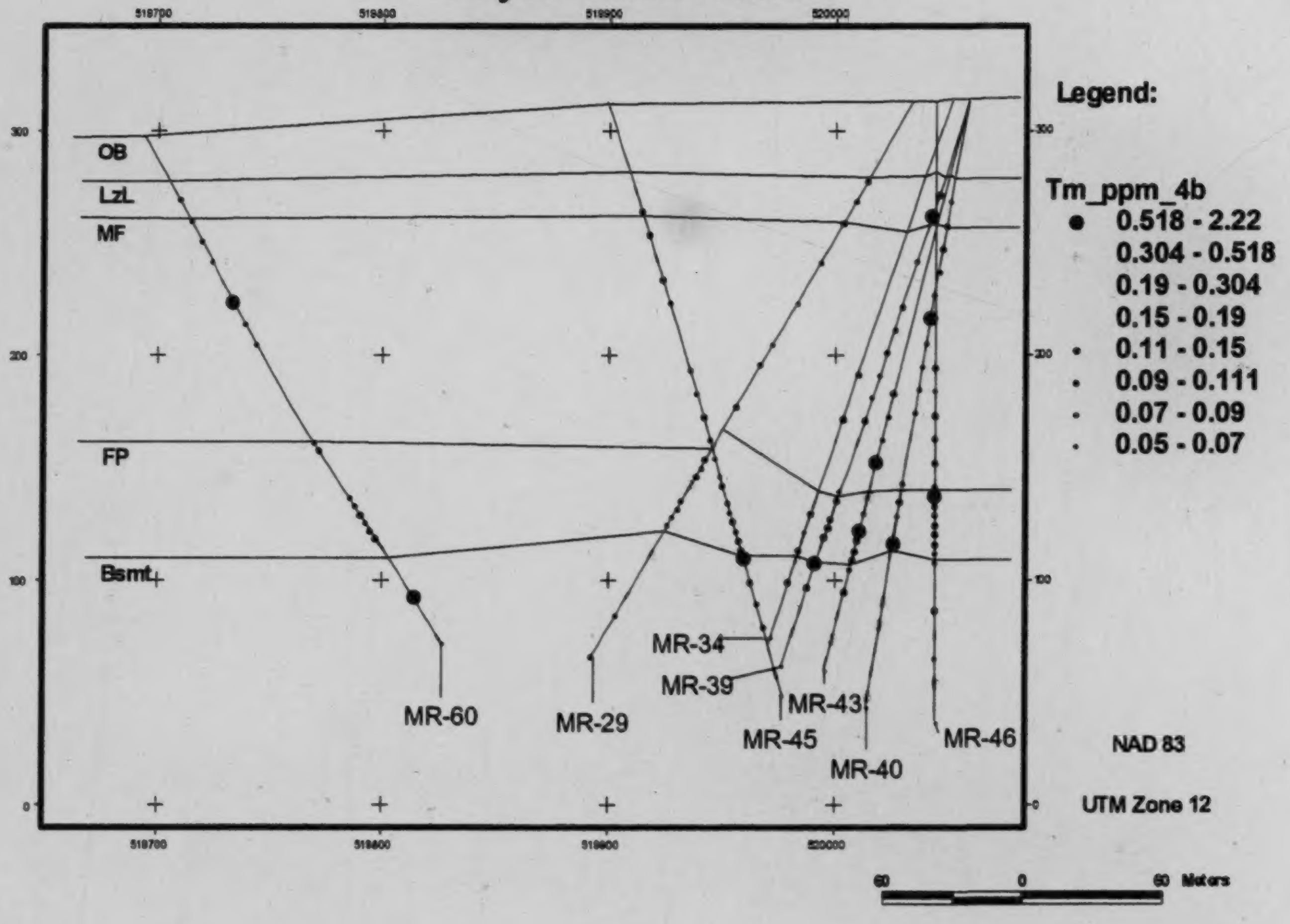
Maybelle River Section

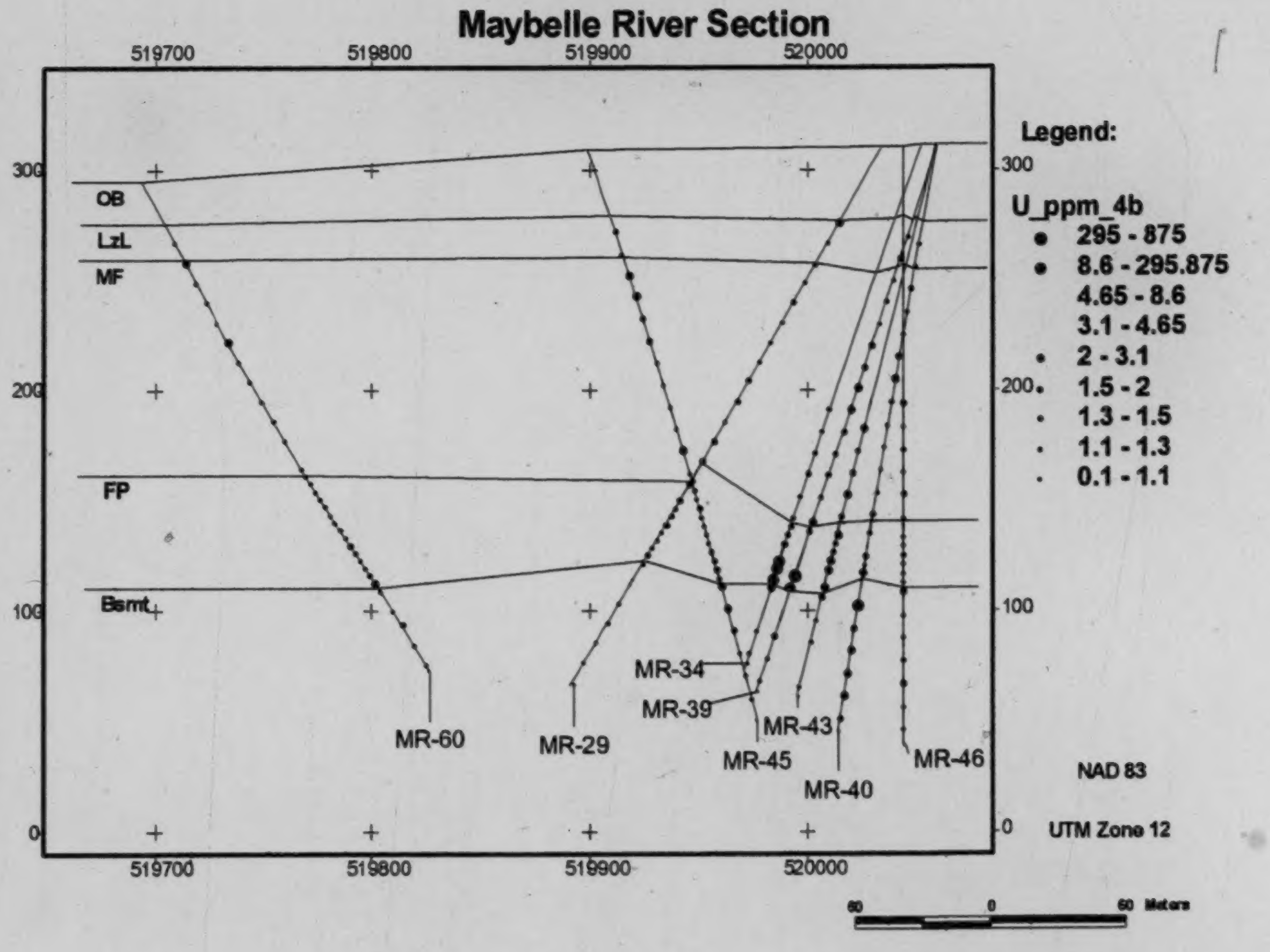


Maybelle River Section

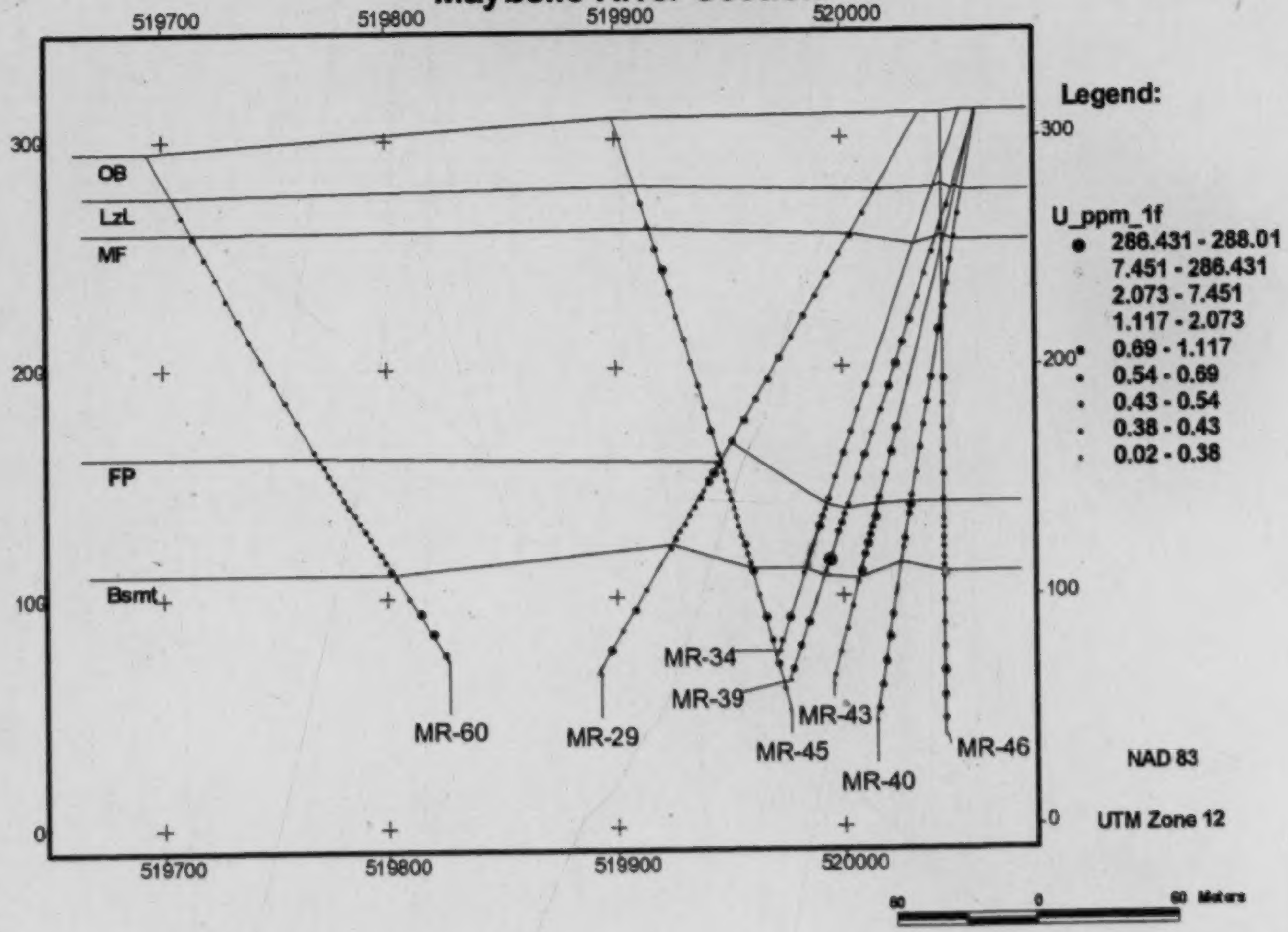


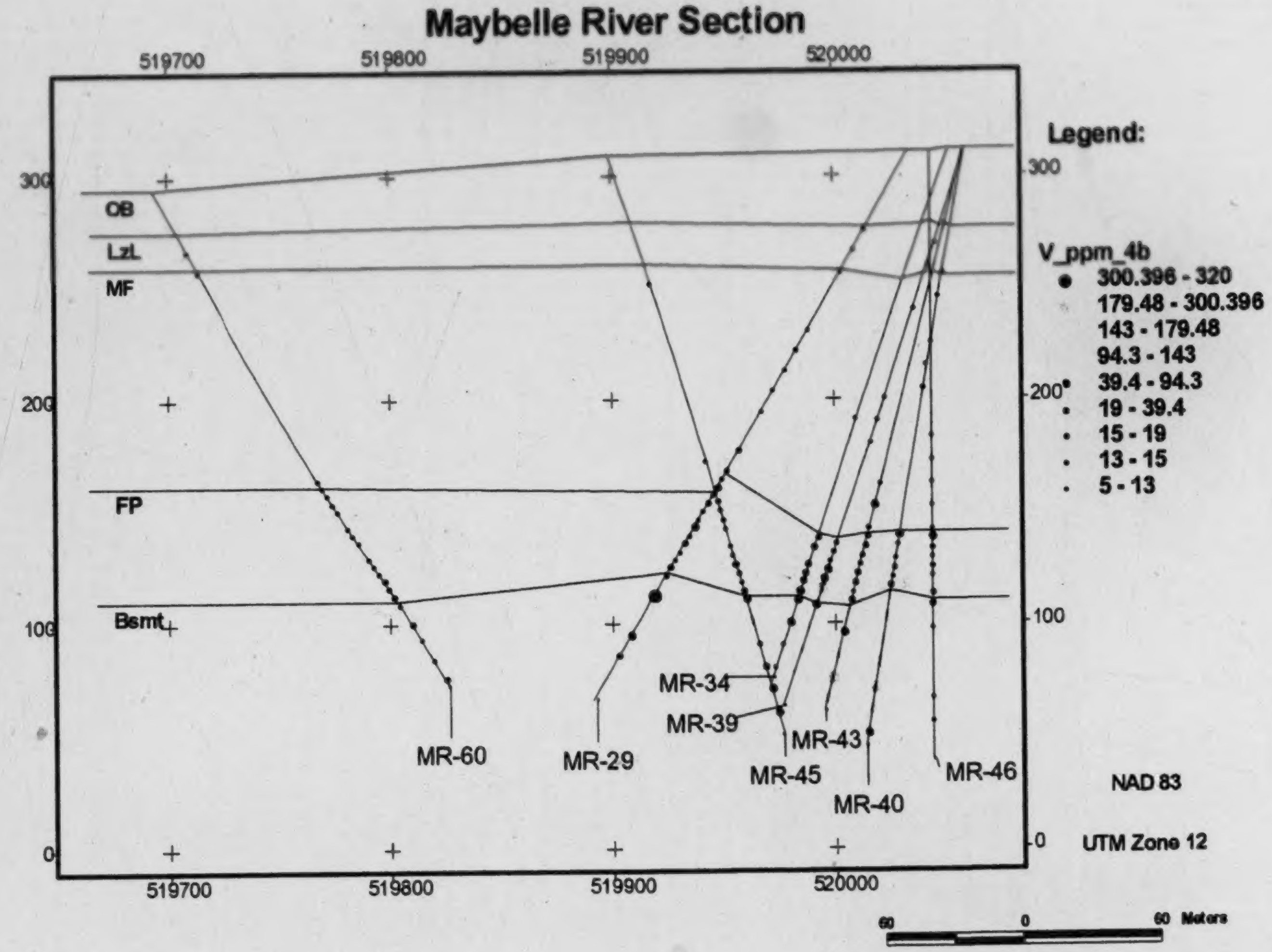
Maybelle River Section



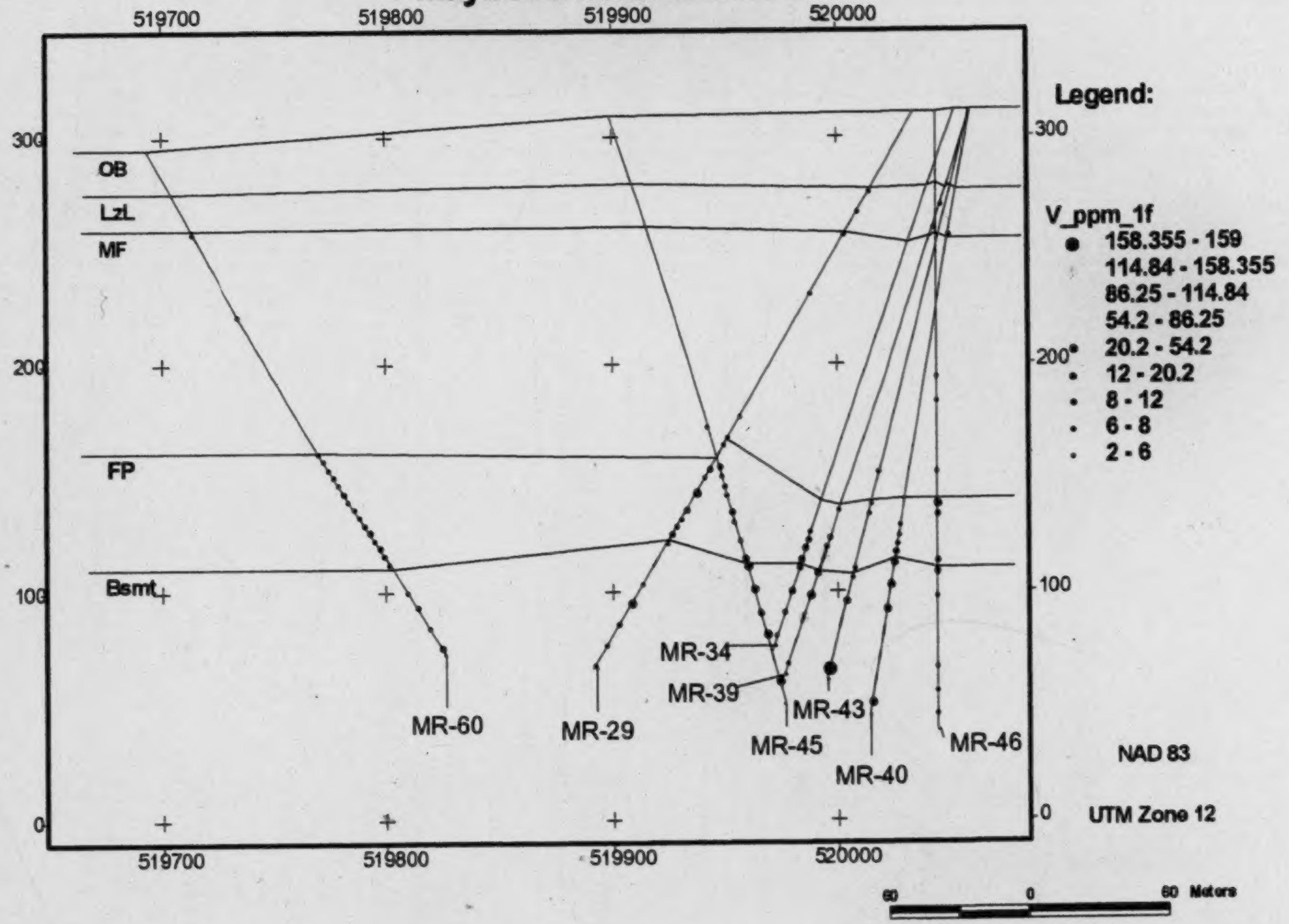

Maybelle River Section
519700
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
U_ppm_4b
295 - 875
8.6 - 295.875
4.65 - 8.6
3.1 - 4.65
2 - 3.1
1.5 - 2
1.3 - 1.5
1.1 - 1.3
0.1 - 1.1
NAD 83
UTM Zone 12
60
0
60 Meters

Maybelle River Section

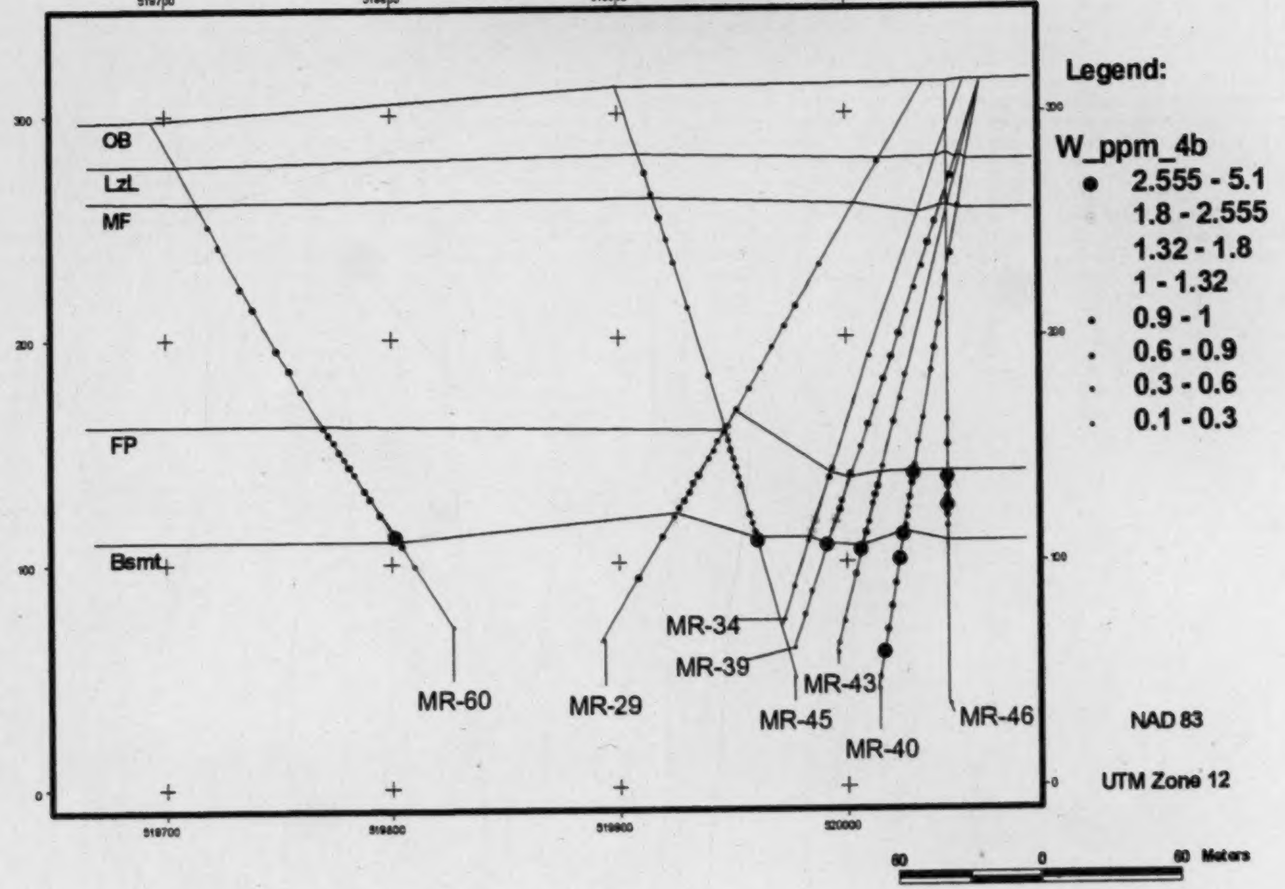



Maybelle River Section
519700
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
V_ppm_4b
● 300.396 - 320
179.48 - 300.396
143 - 179.48
94.3 - 143
39.4 - 94.3
19 - 39.4
15 - 19
13 - 15
5 - 13
NAD 83
UTM Zone 12
60
0
60 Meters

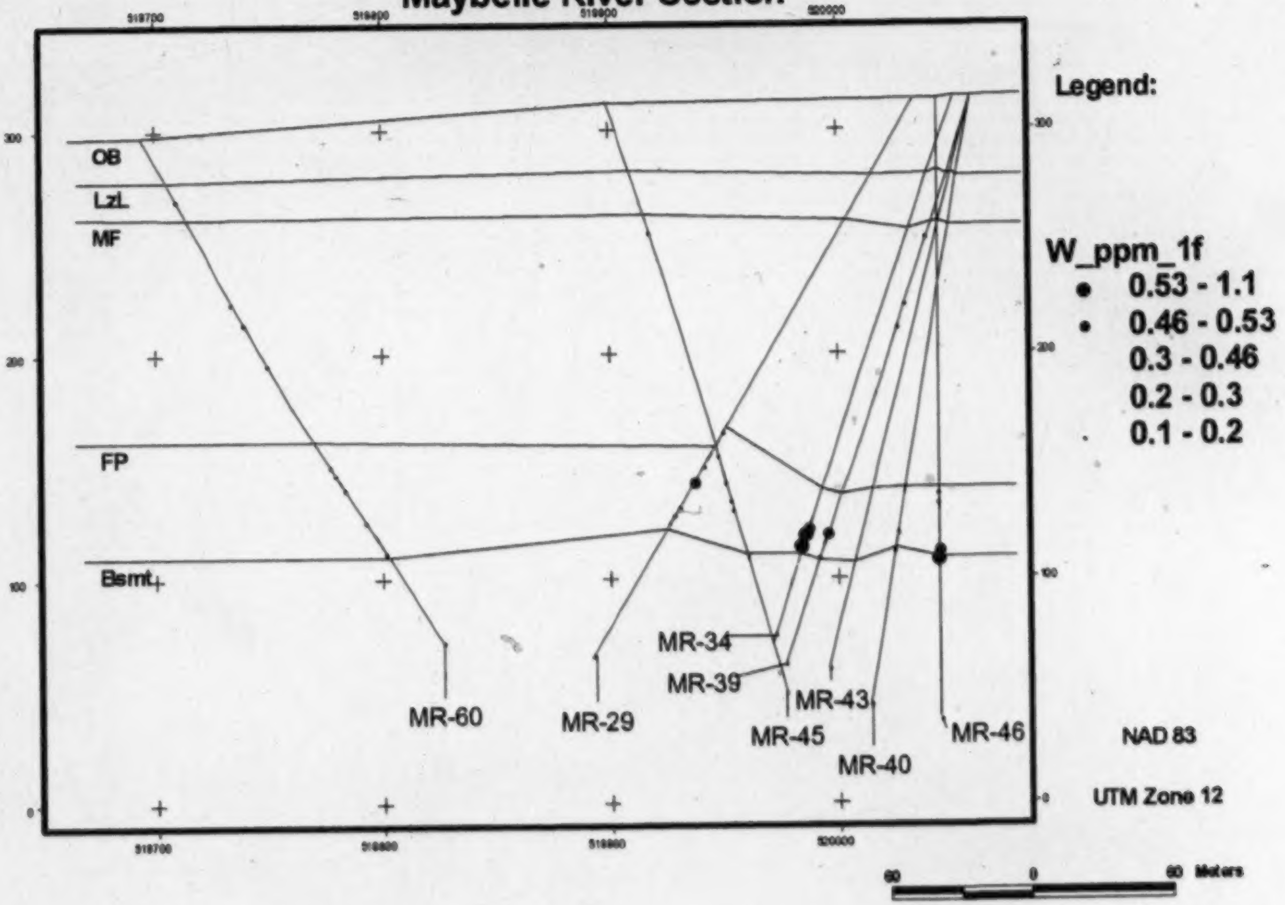
Maybelle River Section

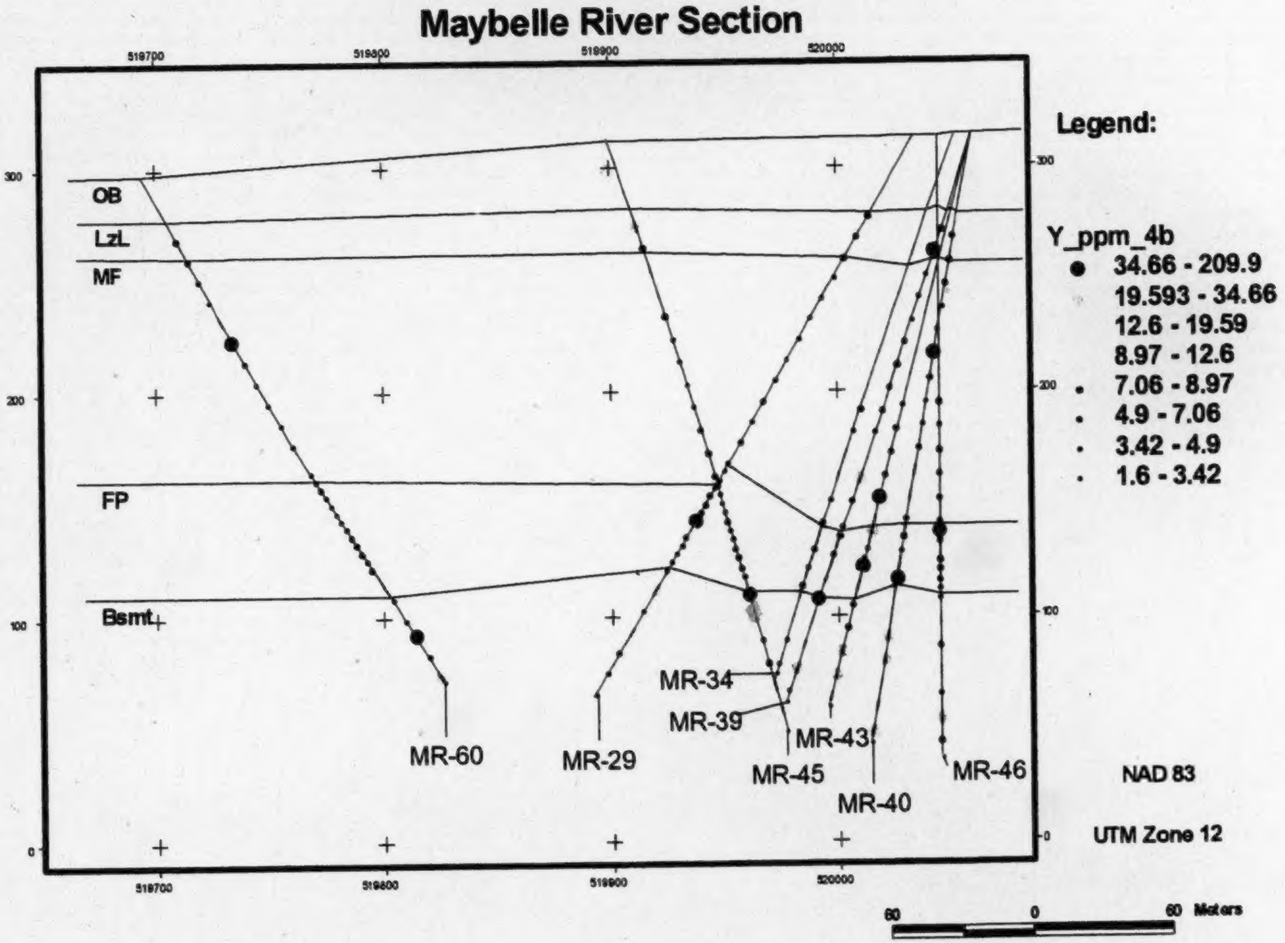

519700
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
V_ppm_1f
● 158.355 - 159
114.84 - 158.355
86.25 - 114.84
54.2 - 86.25
• 20.2 - 54.2
• 12 - 20.2
• 8 - 12
• 6 - 8
• 2 - 6
NAD 83
UTM Zone 12
60
0
60 Meters

Maybelle River Section

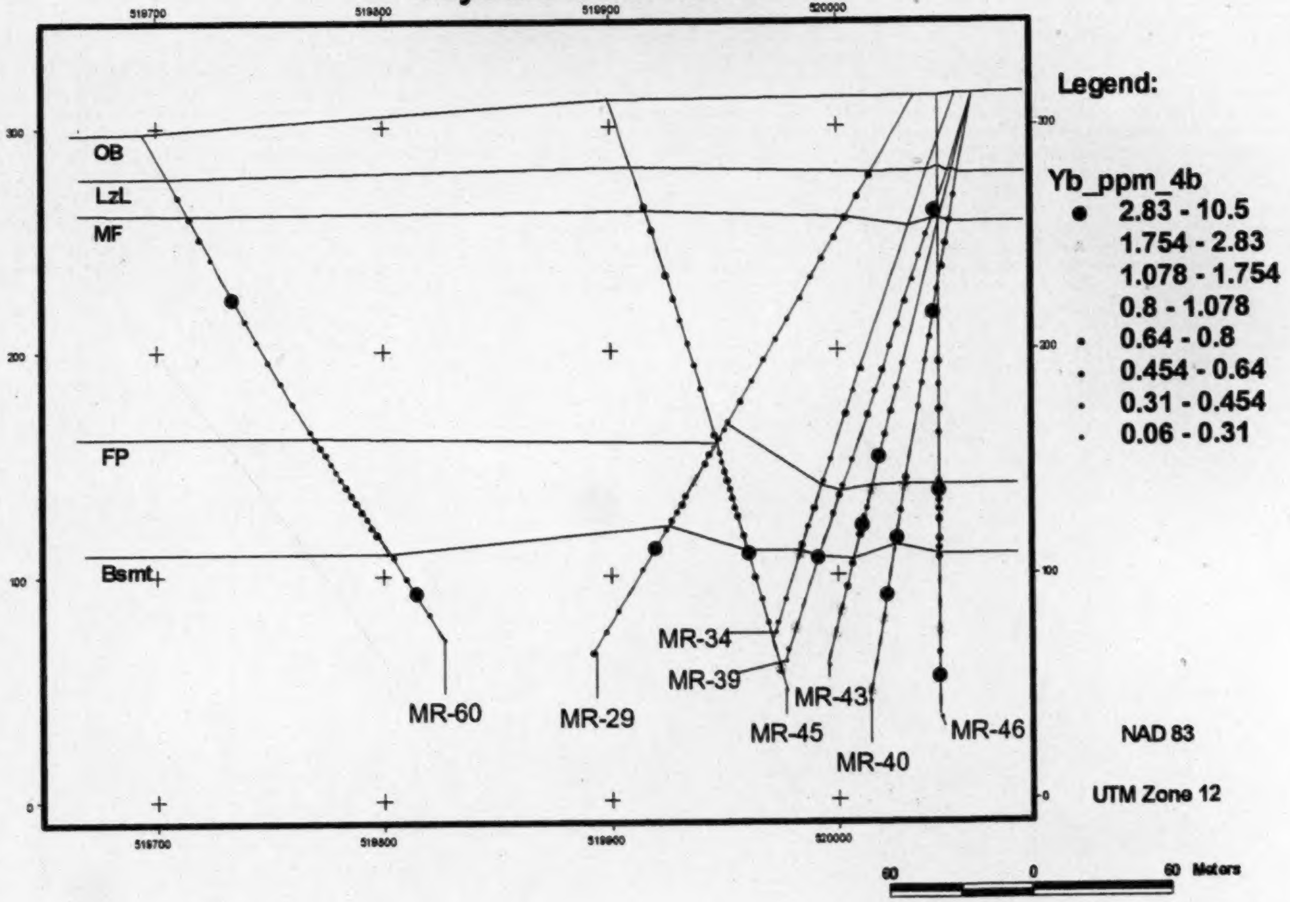

519700
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
W_ppm_4b
● 2.555 - 5.1
1.8 - 2.555
1.32 - 1.8
1 - 1.32
• 0.9 - 1
• 0.6 - 0.9
• 0.3 - 0.6
• 0.1 - 0.3
NAD 83
UTM Zone 12
60
0
60 Meters

Maybelle River Section

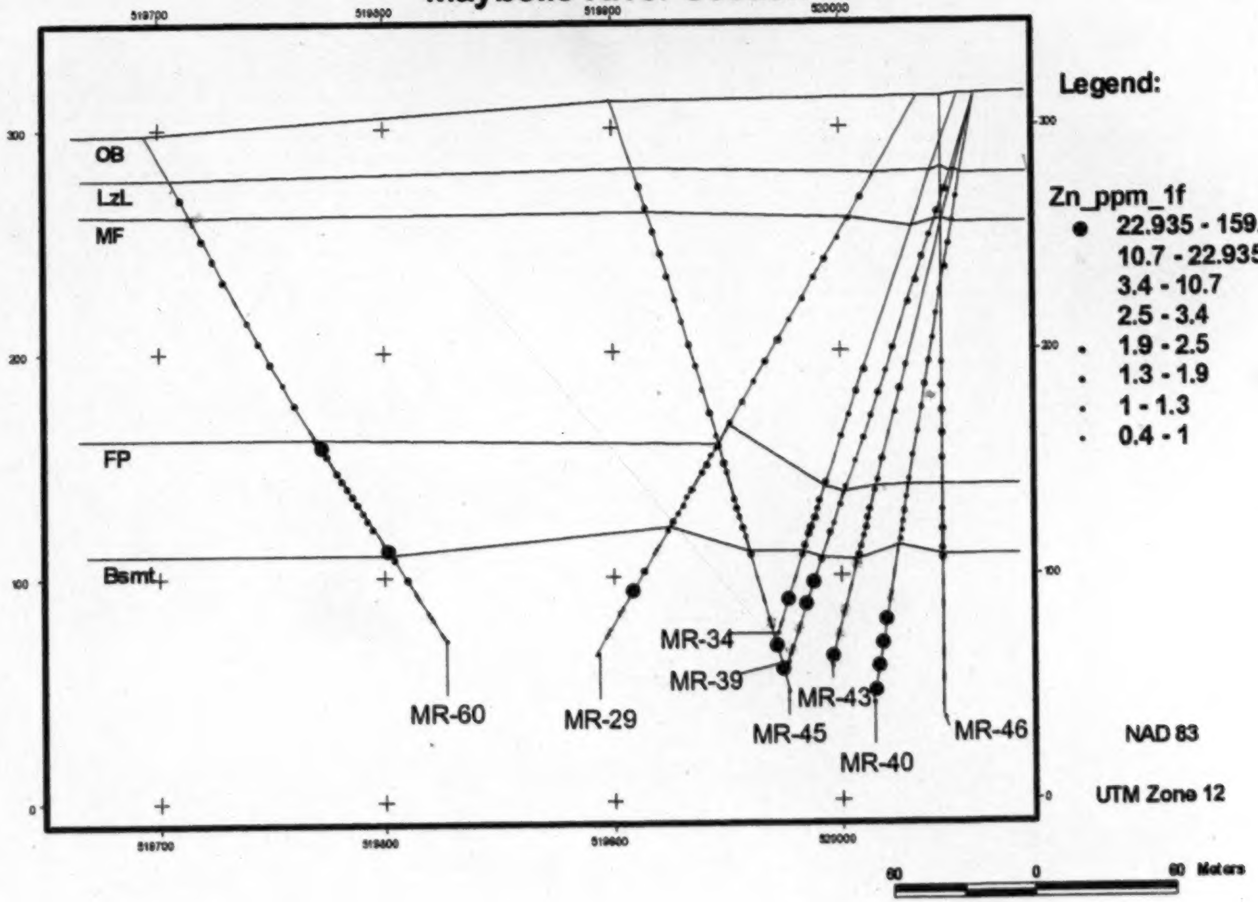

519700
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
W_ppm_1f
● 0.53 - 1.1
• 0.46 - 0.53
0.3 - 0.46
0.2 - 0.3
. 0.1 - 0.2
NAD 83
UTM Zone 12
60
0
60 Meters


Maybelle River Section
519700
519800
519900
520000
300
200
100
0
OB
LzL
MF
FP
Bsmt
MR-60
MR-29
MR-34
MR-39
MR-45
MR-43
MR-40
MR-46
Legend:
Y_ppm_4b
● 34.66 - 209.9
19.593 - 34.66
12.6 - 19.59
8.97 - 12.6
• 7.06 - 8.97
• 4.9 - 7.06
• 3.42 - 4.9
• 1.6 - 3.42
NAD 83
UTM Zone 12
60
0
60 Meters

Maybelle River Section



Maybelle River Section



APPENDIX 9 – PIMA drill hole data

Drill hole	Depth From (m)	Depth To (m)	Sample Depth (m)	Comments	Illite	Chlorite	Dickite	Kaolinite	Halloysite	Dravite	S-Kaolinite	Signal to Noise
MR-29	37.2	39.1	38.2		89.8	0.0	0.0	10.2	0.0	0.0	0.0	10.9
MR-29	39.1	41.0	40.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	16.6
MR-29	41.0	42.9	42.0		86.8	0.0	0.0	13.2	0.0	0.0	0.0	20.4
MR-29	42.9	44.3	43.6		88.6	0.0	0.0	11.4	0.0	0.0	0.0	19.4
MR-29	44.3	45.7	45.0		93.3	6.7	0.0	0.0	0.0	0.0	0.0	22.9
MR-29	45.2	45.4	45.3	Fault	87.5	12.5	0.0	0.0	0.0	0.0	0.0	49.4
MR-29	45.7	47.0	46.4		80.3	19.7	0.0	0.0	0.0	0.0	0.0	12.6
MR-29	47.0	48.4	47.7		95.6	0.0	0.0	4.4	0.0	0.0	0.0	9.2
MR-29	48.4	49.7	49.0		92.9	0.0	0.0	7.1	0.0	0.0	0.0	17.6
MR-29	49.8	51.1	50.4		85.8	0.0	0.0	14.2	0.0	0.0	0.0	3.8
MR-29	51.1	52.3	51.7		97.7	0.0	0.0	2.3	0.0	0.0	0.0	21.4
MR-29	52.3	53.5	52.9		96.7	0.0	0.0	3.3	0.0	0.0	0.0	20.4
MR-29	53.5	54.8	54.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.8
MR-29	54.8	56.1	55.4		76.3	23.7	0.0	0.0	0.0	0.0	0.0	15.0
MR-29	56.1	57.5	56.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	36.8
MR-29	57.4	58.8	58.1		96.0	4.0	0.0	0.0	0.0	0.0	0.0	21.1
MR-29	58.8	60.3	59.5		76.5	23.5	0.0	0.0	0.0	0.0	0.0	23.3
MR-29	60.3	61.7	61.0		81.4	18.6	0.0	0.0	0.0	0.0	0.0	22.3
MR-29	61.8	63.2	62.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	17.4
MR-29	62.4	62.6	62.5	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.3
MR-29	63.2	64.6	63.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	19.6
MR-29	64.6	66.0	65.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	23.0
MR-29	66.0	67.4	66.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	20.2
MR-29	67.4	68.9	68.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	23.3
MR-29	68.9	70.3	69.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	8.1
MR-29	69.7	69.9	69.8	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	33.2
MR-29	70.4	71.8	71.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.6
MR-29	71.8	73.2	72.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.4
MR-29	73.2	74.6	73.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	11.6
MR-29	74.6	76.0	75.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	13.3
MR-29	76.0	77.4	76.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.1
MR-29	77.4	78.9	78.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.2
MR-29	78.8	80.3	79.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.3
MR-29	80.3	81.7	81.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	16.0
MR-29	81.7	83.2	82.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.8
MR-29	83.1	84.6	83.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.2
MR-29	84.6	85.9	85.3		97.3	0.0	0.0	2.7	0.0	0.0	0.0	20.0
MR-29	85.9	87.3	86.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	16.9
MR-29	98.9	99.1	99.0	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	36.8
MR-29	87.2	88.6	87.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	14.5
MR-29	88.6	90.0	89.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.6
MR-29	90.0	91.5	90.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.7
MR-29	91.5	92.9	92.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	19.2
MR-29	92.9	94.4	93.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	19.5
MR-29	94.4	95.9	95.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	38.6
MR-29	95.9	97.3	96.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.4
MR-29	97.3	98.7	98.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.8
MR-29	98.7	100.1	99.4		95.9	0.0	0.0	4.1	0.0	0.0	0.0	24.4
MR-29	100.1	101.6	100.9		94.9	0.0	0.0	5.1	0.0	0.0	0.0	24.5
MR-29	101.6	103.1	102.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	35.3
MR-29	103.1	104.6	103.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	16.9
MR-29	103.9	104.1	104.0	Fault	98.7	0.0	1.3	0.0	0.0	0.0	0.0	54.1
MR-29	104.6	106.1	105.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.8
MR-29	106.1	107.6	106.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	20.7
MR-29	107.6	109.1	108.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.0
MR-29	108.6	108.8	108.7	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	48.3
MR-29	109.1	110.5	109.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	20.5
MR-29	110.5	112.0	111.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	23.7
MR-29	112.0	113.5	112.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	35.9
MR-29	112.5	112.7	112.6	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	37.4
MR-29	113.5	114.9	114.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	38.3
MR-29	114.9	116.4	115.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	38.6
MR-29	116.4	117.9	117.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.5
MR-29	117.9	119.4	118.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3
MR-29	119.4	120.8	120.1		93.5	0.0	0.0	6.5	0.0	0.0	0.0	24.7
MR-29	120.8	122.2	121.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.2
MR-29	122.2	123.7	123.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	15.2
MR-29	123.7	125.1	124.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	18.2
MR-29	125.1	126.5	125.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	41.8
MR-29	126.5	128.0	127.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.4
MR-29	128.0	129.4	128.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	20.4
MR-29	129.4	130.8	130.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.3
MR-29	130.8	132.3	131.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.5
MR-29	132.3	133.7	133.0		99.8	0.0	0.0	0.2	0.0	0.0	0.0	21.0
MR-29	133.4	133.6	133.5	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.1
MR-29	133.7	135.1	134.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.5
MR-29	135.1	136.5	135.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.6
MR-29	136.5	138.0	137.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.4
MR-29	187.3	187.5	187.4	Fault	100.0	0.0	0.0	0.0	0.0	0.0	0.0	61.9
MR-29	138.0	139.5	138.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.9

Drill hole	Depth From (m)	Depth To (m)	Sample Depth (m)	Comments	Illite	Chlorite	Dickite	Kaolinite	Halloysite	Dravite	S-Kaolinite	Signal to Noise
MR-29	139.5	141.0	140.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.2
MR-29	141.0	142.4	141.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	39.1
MR-29	142.4	143.8	143.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.3
MR-29	143.7	143.9	143.8	Fault	100.0	0.0	0.0	0.0	0.0	0.0	0.0	45.6
MR-29	143.8	145.3	144.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.8
MR-29	144.2	144.6	144.4	Fault	95.2	0.0	4.8	0.0	0.0	0.0	0.0	59.7
MR-29	145.3	146.8	146.0		95.3	0.0	0.0	4.7	0.0	0.0	0.0	16.4
MR-29	145.5	145.7	145.6	Fault	95.9	0.0	4.1	0.0	0.0	0.0	0.0	63.6
MR-29	146.8	148.3	147.5		87.1	0.0	0.0	12.9	0.0	0.0	0.0	18.8
MR-29	147.9	148.1	148.0	Fault	100.0	0.0	0.0	0.0	0.0	0.0	0.0	41.1
MR-29	148.3	149.7	149.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.9
MR-29	149.7	151.1	150.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.7
MR-29	151.1	152.5	151.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	32.0
MR-29	124.4	124.6	124.5	Fault	100.0	0.0	0.0	0.0	0.0	0.0	0.0	38.9
MR-29	152.5	154.0	153.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	36.8
MR-29	154.0	155.4	154.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.4
MR-29	155.4	156.8	156.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0
MR-29	156.8	158.2	157.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.5
MR-29	157.3	157.5	157.4	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	43.3
MR-29	157.1	157.3	157.2	Fault	93.4	0.0	6.6	0.0	0.0	0.0	0.0	47.4
MR-29	158.2	159.7	158.9		93.7	0.0	0.0	6.3	0.0	0.0	0.0	16.8
MR-29	159.3	159.5	159.4	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	54.0
MR-29	159.7	161.2	160.4		90.8	0.0	9.2	0.0	0.0	0.0	0.0	37.7
MR-29	164.8	165.0	164.9	Fault	93.9	0.0	6.1	0.0	0.0	0.0	0.0	57.2
MR-29	161.2	162.6	161.9		96.3	0.0	3.7	0.0	0.0	0.0	0.0	38.5
MR-29	162.6	164.1	163.4		94.1	0.0	5.9	0.0	0.0	0.0	0.0	29.8
MR-29	164.1	165.6	164.9		99.5	0.0	0.5	0.0	0.0	0.0	0.0	24.3
MR-29	165.6	167.1	166.4		97.3	0.0	2.7	0.0	0.0	0.0	0.0	42.1
MR-29	167.1	168.5	167.8		99.2	0.0	0.8	0.0	0.0	0.0	0.0	34.5
MR-29	168.1	168.3	168.2	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	43.3
MR-29	168.5	169.9	169.2		98.8	0.0	1.2	0.0	0.0	0.0	0.0	18.7
MR-29	169.9	171.3	170.6		94.3	0.0	5.7	0.0	0.0	0.0	0.0	35.9
MR-29	171.3	172.8	172.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	34.3
MR-29	172.8	174.3	173.5		88.8	0.0	11.2	0.0	0.0	0.0	0.0	45.9
MR-29	174.3	175.7	175.0		94.3	0.0	5.7	0.0	0.0	0.0	0.0	35.9
MR-29	175.7	177.1	176.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	34.3
MR-29	176.6	176.8	176.7	Bed	35.3	0.0	0.0	64.7	0.0	0.0	0.0	35.7
MR-29	177.1	178.5	177.8		88.8	0.0	11.2	0.0	0.0	0.0	0.0	45.9
MR-29	178.5	180.0	179.3		23.1	0.0	0.0	0.0	0.0	0.0	76.9	9.3
MR-29	180.0	181.5	180.7		26.7	0.0	73.3	0.0	0.0	0.0	0.0	26.2
MR-29	181.5	183.0	182.2		38.1	0.0	61.9	0.0	0.0	0.0	0.0	34.8
MR-29	183.0	184.4	183.7		35.8	0.0	64.2	0.0	0.0	0.0	0.0	39.8
MR-29	184.4	185.8	185.1		65.8	0.0	34.2	0.0	0.0	0.0	0.0	32.3
MR-29	185.8	187.2	186.5		30.0	0.0	70.0	0.0	0.0	0.0	0.0	26.1
MR-29	187.2	188.6	187.9		64.4	0.0	35.6	0.0	0.0	0.0	0.0	46.5
MR-29	188.6	190.0	189.3		65.8	0.0	34.2	0.0	0.0	0.0	0.0	32.3
MR-29	190.0	191.4	190.7		32.1	0.0	67.9	0.0	0.0	0.0	0.0	41.7
MR-29	191.4	192.9	192.2		64.4	0.0	35.6	0.0	0.0	0.0	0.0	46.5
MR-29	192.9	194.3	193.6		48.5	0.0	51.5	0.0	0.0	0.0	0.0	25.3
MR-29	194.3	195.7	195.0		32.1	0.0	67.9	0.0	0.0	0.0	0.0	41.7
MR-29	195.3	195.5	195.4	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.4
MR-29	195.7	197.2	196.5		33.5	0.0	66.5	0.0	0.0	0.0	0.0	21.8
MR-29	197.2	198.7	197.9		21.6	0.0	78.4	0.0	0.0	0.0	0.0	13.1
MR-29	198.7	200.2	199.4		17.6	0.0	82.4	0.0	0.0	0.0	0.0	40.3
MR-29	200.2	201.6	200.9		16.1	0.0	83.9	0.0	0.0	0.0	0.0	45.0
MR-29	201.6	203.0	202.3		19.2	0.0	80.8	0.0	0.0	0.0	0.0	37.0
MR-29	203.0	204.4	203.7		26.2	0.0	73.8	0.0	0.0	0.0	0.0	24.8
MR-29	204.4	205.9	205.2		35.5	0.0	64.5	0.0	0.0	0.0	0.0	20.4
MR-29	205.9	207.4	206.6		50.3	0.0	49.7	0.0	0.0	0.0	0.0	22.3
MR-29	207.4	208.9	208.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.1
MR-29	208.9	210.3	209.6		52.4	0.0	0.0	47.6	0.0	0.0	0.0	2.8
MR-29	210.3	211.8	211.0		56.8	0.0	0.0	43.2	0.0	0.0	0.0	20.6
MR-29	211.8	213.3	212.5		41.9	58.1	0.0	0.0	0.0	0.0	0.0	6.2
MR-29	213.3	214.7	214.0		0.0	94.7	0.0	5.3	0.0	0.0	0.0	20.7
MR-29	214.7	216.2	215.4		7.9	92.1	0.0	0.0	0.0	0.0	0.0	15.3
MR-29	216.3	217.8	217.0		0.1	99.9	0.0	0.0	0.0	0.0	0.0	5.4
MR-29	217.8	219.1	218.5		25.2	74.8	0.0	0.0	0.0	0.0	0.0	24.6
MR-29	219.1	220.5	219.8		9.3	90.7	0.0	0.0	0.0	0.0	0.0	9.7
MR-29	220.5	221.9	221.2		3.3	96.7	0.0	0.0	0.0	0.0	0.0	14.0
MR-29	221.9	223.2	222.6		0.5	99.5	0.0	0.0	0.0	0.0	0.0	9.5
MR-29	223.2	227.6	225.4		11.8	77.2	0.0	11.0	0.0	0.0	0.0	2.9
MR-34	34.3	35.6	35.0		83.9	0.0	0.0	16.1	0.0	0.0	0.0	19.1
MR-34	35.6	36.9	36.3		96.6	0.0	0.0	3.4	0.0	0.0	0.0	30.7
MR-34	36.9	38.3	37.6		97.5	0.0	0.0	2.5	0.0	0.0	0.0	20.9
MR-34	38.3	39.7	39.0		80.6	0.0	0.0	11.6	0.0	7.8	0.0	9.3
MR-34	39.7	41.1	40.4		81.0	0.0	0.0	19.0	0.0	0.0	0.0	23.7
MR-34	41.1	42.5	41.8		84.1	0.0	0.0	15.9	0.0	0.0	0.0	7.9
MR-34	42.5	43.9	43.2		78.5	0.0	0.0	21.5	0.0	0.0	0.0	9.3
MR-34	43.9	45.3	44.6		85.5	0.0	0.0	14.5	0.0	0.0	0.0	8.6

Drill hole	Depth From (m)	Depth To (m)	Sample Depth (m)	Comments	Illite	Chlorite	Dickite	Kaolinite	Halloysite	Dravite	S-Kaolinite	Signal to Noise
MR-34	45.3	6.8	26.1		77.0	0.0	0.0	23.0	0.0	0.0	0.0	11.6
MR-34	46.8	48.2	47.5		90.7	0.0	0.0	9.3	0.0	0.0	0.0	12.6
MR-34	48.2	49.6	48.9		98.0	0.0	0.0	2.0	0.0	0.0	0.0	15.6
MR-34	49.6	51.1	50.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	15.6
MR-34	51.1	52.6	51.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	12.1
MR-34	52.6	54.1	53.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	19.4
MR-34	54.1	55.5	54.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.1
MR-34	55.5	57.0	56.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	15.0
MR-34	57.0	58.5	57.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	10.4
MR-34	58.5	59.9	59.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	11.2
MR-34	59.9	61.1	60.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.6
MR-34	61.1	62.3	61.7		97.1	0.0	0.0	2.9	0.0	0.0	0.0	15.4
MR-34	62.3	63.6	63.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	20.2
MR-34	63.6	65.1	64.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.6
MR-34	65.1	66.6	65.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	6.6
MR-34	66.6	68.0	67.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	17.7
MR-34	68.0	69.4	68.7		85.1	0.0	0.0	14.9	0.0	0.0	0.0	18.0
MR-34	69.4	70.8	70.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.5
MR-34	70.8	72.2	71.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.4
MR-34	72.2	73.6	72.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.9
MR-34	73.6	75.0	74.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	12.0
MR-34	75.0	76.3	75.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.1
MR-34	76.3	77.7	77.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	48.5
MR-34	77.7	79.1	78.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.0
MR-34	79.1	80.6	79.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5
MR-34	80.6	82.0	81.3		99.6	0.0	0.0	0.4	0.0	0.0	0.0	20.1
MR-34	82.0	83.4	82.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5
MR-34	83.4	84.7	84.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.7
MR-34	84.7	86.1	85.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	33.7
MR-34	86.1	87.5	86.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	52.8
MR-34	87.5	89.0	88.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.1
MR-34	89.0	90.5	89.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	38.0
MR-34	90.5	92.0	91.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.8
MR-34	92.0	93.4	92.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0
MR-34	93.4	94.8	94.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.0
MR-34	94.8	96.2	95.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.4
MR-34	96.2	97.7	97.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	36.7
MR-34	97.7	99.1	98.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.2
MR-34	99.1	100.5	99.8		86.6	0.0	0.0	13.4	0.0	0.0	0.0	22.7
MR-34	100.5	101.9	101.2		89.3	0.0	0.0	10.7	0.0	0.0	0.0	28.5
MR-34	101.9	103.8	102.9		97.3	0.0	2.7	0.0	0.0	0.0	0.0	24.5
MR-34	103.8	105.7	104.8		88.6	0.0	11.4	0.0	0.0	0.0	0.0	27.2
MR-34	105.7	107.6	106.7		68.4	0.0	0.0	0.0	0.0	0.0	31.6	24.7
MR-34	107.6	109.3	108.4		87.6	0.0	0.0	0.0	0.0	0.0	12.4	23.6
MR-34	109.3	111.0	110.1		86.5	0.0	0.0	0.0	0.0	0.0	13.5	34.6
MR-34	111.0	12.6	61.8		96.1	0.0	3.9	0.0	0.0	0.0	0.0	39.3
MR-34	112.6	114.0	113.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	18.1
MR-34	114.0	115.4	114.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	45.5
MR-34	115.4	116.9	116.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.0
MR-34	116.9	118.4	117.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.8
MR-34	118.4	119.9	119.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.3
MR-34	119.9	121.3	120.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.9
MR-34	121.3	122.2	121.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	20.1
MR-34	122.2	123.1	122.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.4
MR-34	123.1	124.0	123.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	23.7
MR-34	123.9	126.0	124.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	23.5
MR-34	126.0	128.1	127.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.8
MR-34	128.1	130.1	129.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.0
MR-34	130.1	131.6	130.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.7
MR-34	131.6	133.1	132.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	42.2
MR-34	133.1	134.6	133.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.0
MR-34	134.6	136.2	135.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.3
MR-34	136.2	137.8	137.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.3
MR-34	137.8	139.4	138.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	34.3
MR-34	139.4	140.8	140.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.1
MR-34	140.8	142.2	141.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	33.6
MR-34	142.2	143.5	142.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	46.8
MR-34	143.5	144.9	144.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	40.7
MR-34	144.9	146.3	145.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.1
MR-34	146.3	147.8	147.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	33.4
MR-34	147.8	149.2	148.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.4
MR-34	149.2	150.6	149.9		91.4	0.0	0.0	8.6	0.0	0.0	0.0	20.8
MR-34	150.6	152.1	151.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	43.8
MR-34	152.1	153.5	152.8		76.4	0.0	0.0	23.6	0.0	0.0	0.0	15.1
MR-34	153.5	154.9	154.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	32.5
MR-34	154.9	156.4	155.7		89.4	0.0	0.0	10.6	0.0	0.0	0.0	13.3
MR-34	156.4	157.8	157.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.9
MR-34	157.8	159.2	158.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0
MR-34	159.2	160.7	160.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	18.7

Drill hole	Depth From (m)	Depth To (m)	Sample Depth (m)	Comments	Illite	Chlorite	Dickite	Kaolinite	Halloysite	Dravite	S-Kaolinite	Signal to Noise
MR-34	160.7	162.1	161.4		92.6	0.0	0.0	7.4	0.0	0.0	0.0	8.2
MR-34	162.1	163.5	162.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	19.0
MR-34	163.5	165.0	164.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.8
MR-34	165.0	166.5	165.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.5
MR-34	166.5	168.0	167.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	18.9
MR-34	168.0	169.4	168.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	34.8
MR-34	169.4	170.9	170.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	39.8
MR-34	170.9	172.4	171.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.6
MR-34	172.4	173.8	173.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.5
MR-34	173.8	175.3	174.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	23.8
MR-34	175.3	176.8	176.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.1
MR-34	176.8	178.2	177.5		99.8	0.0	0.2	0.0	0.0	0.0	0.0	22.5
MR-34	178.2	179.6	178.9		99.4	0.0	0.6	0.0	0.0	0.0	0.0	38.7
MR-34	179.6	181.0	180.3		93.2	0.0	6.8	0.0	0.0	0.0	0.0	31.2
MR-34	181.0	182.4	181.7		56.7	0.0	43.3	0.0	0.0	0.0	0.0	31.0
MR-34	182.4	183.9	183.1		93.7	0.0	6.3	0.0	0.0	0.0	0.0	37.7
MR-34	183.9	185.4	184.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.9
MR-34	185.4	186.8	186.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	17.9
MR-34	186.8	188.3	187.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	18.8
MR-34	188.3	189.8	189.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	14.7
MR-34	189.8	191.3	190.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	16.0
MR-34	191.3	192.8	192.0		84.7	0.0	0.0	15.3	0.0	0.0	0.0	4.8
MR-34	192.8	194.3	193.5		60.8	0.0	0.0	30.8	0.0	8.4	0.0	8.8
MR-34	194.3	197.8	196.1		64.3	0.0	0.0	35.7	0.0	0.0	0.0	10.7
MR-34	197.8	201.3	199.5		69.8	0.0	0.0	30.2	0.0	0.0	0.0	6.4
MR-34	201.3	202.8	202.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	10.4
MR-34	202.8	204.2	203.5		67.7	32.3	0.0	0.0	0.0	0.0	0.0	39.2
MR-34	204.2	205.7	205.0		33.0	66.9	0.0	0.1	0.0	0.0	0.0	17.4
MR-34	205.7	207.2	206.5		20.6	79.4	0.0	0.0	0.0	0.0	0.0	19.9
MR-34	207.2	208.7	208.0		19.5	80.5	0.0	0.0	0.0	0.0	0.0	23.5
MR-34	208.7	210.1	209.4		4.0	75.0	0.0	21.0	0.0	0.0	0.0	2.1
MR-34	210.1	211.5	210.8		1.0	93.7	0.0	5.3	0.0	0.0	0.0	9.6
MR-34	211.5	212.9	212.2		40.8	59.2	0.0	0.0	0.0	0.0	0.0	20.6
MR-34	212.9	214.4	213.7		44.8	55.2	0.0	0.0	0.0	0.0	0.0	18.4
MR-34	214.4	215.9	215.2		30.9	69.1	0.0	0.0	0.0	0.0	0.0	6.5
MR-34	215.9	217.4	216.7		39.0	61.0	0.0	0.0	0.0	0.0	0.0	14.3
MR-34	217.4	218.8	218.1		0.0	66.5	0.0	33.5	0.0	0.0	0.0	3.9
MR-34	218.8	220.2	219.5		0.0	86.0	0.0	14.0	0.0	0.0	0.0	2.9
MR-39	34.5	35.9	35.2		70.2	0.0	0.0	29.8	0.0	0.0	0.0	13.5
MR-39	35.9	37.3	36.6		84.2	15.8	0.0	0.0	0.0	0.0	0.0	20.0
MR-39	37.3	38.6	38.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	19.4
MR-39	38.6	40.0	39.3		78.6	0.0	0.0	21.4	0.0	0.0	0.0	12.9
MR-39	40.0	41.4	40.7		89.1	10.9	0.0	0.0	0.0	0.0	0.0	17.5
MR-39	41.4	42.9	42.2		99.2	0.0	0.0	0.8	0.0	0.0	0.0	13.8
MR-39	42.9	44.3	43.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.0
MR-39	44.3	45.7	45.0		83.5	0.0	0.0	16.5	0.0	0.0	0.0	16.1
MR-39	45.7	47.0	46.4		92.1	7.9	0.0	0.0	0.0	0.0	0.0	18.8
MR-39	47.0	48.5	47.7		73.2	22.5	0.0	4.3	0.0	0.0	0.0	8.3
MR-39	48.5	50.0	49.2		72.6	0.0	0.0	27.4	0.0	0.0	0.0	6.2
MR-39	50.0	51.4	50.7		94.5	1.0	0.0	4.5	0.0	0.0	0.0	8.9
MR-39	51.4	52.8	52.1		88.2	10.6	0.0	1.2	0.0	0.0	0.0	8.9
MR-39	52.8	54.2	53.5		88.6	8.5	0.0	2.9	0.0	0.0	0.0	12.4
MR-39	54.2	55.7	55.0		83.4	16.6	0.0	0.0	0.0	0.0	0.0	13.0
MR-39	55.7	57.1	56.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	15.3
MR-39	57.1	58.5	57.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.6
MR-39	58.5	59.9	59.2		91.0	9.0	0.0	0.0	0.0	0.0	0.0	25.5
MR-39	59.9	61.3	60.6		89.3	10.7	0.0	0.0	0.0	0.0	0.0	16.4
MR-39	61.3	62.7	62.0		91.3	8.7	0.0	0.0	0.0	0.0	0.0	12.4
MR-39	62.7	64.1	63.4		90.9	9.1	0.0	0.0	0.0	0.0	0.0	16.2
MR-39	64.1	65.5	64.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	23.5
MR-39	65.5	66.9	66.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	23.8
MR-39	66.9	68.4	67.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	23.2
MR-39	68.4	69.8	69.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.3
MR-39	69.8	71.2	70.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	19.3
MR-39	71.2	72.5	71.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.5
MR-39	72.5	74.0	73.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5
MR-39	74.0	75.5	74.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	19.4
MR-39	75.5	76.9	76.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.6
MR-39	76.9	78.6	77.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	14.7
MR-39	78.6	80.3	79.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.8
MR-39	80.3	81.9	81.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.4
MR-39	81.9	83.1	82.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.6
MR-39	83.1	84.3	83.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	32.8
MR-39	84.3	85.4	84.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.0
MR-39	85.4	86.8	86.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	18.9
MR-39	86.8	88.2	87.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.1
MR-39	88.2	89.6	88.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	16.5
MR-39	89.6	91.1	90.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	32.9
MR-39	91.1	92.6	91.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.2

Drill hole	Depth From (m)	Depth To (m)	Sample Depth (m)	Comments	Illite	Chlorite	Dickite	Kaolinite	Halloysite	Dravite	S-Kaolinite	Signal to Noise
MR-39	92.6	94.0	93.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.1
MR-39	94.0	95.5	94.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	34.7
MR-39	95.5	97.0	96.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	34.4
MR-39	97.0	98.4	97.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	32.6
MR-39	98.4	99.8	99.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	35.7
MR-39	99.8	101.2	100.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.8
MR-39	101.2	102.6	101.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	15.6
MR-39	102.6	104.1	103.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.6
MR-39	104.1	105.6	104.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	9.9
MR-39	105.6	107.0	106.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.8
MR-39	107.0	108.4	107.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.2
MR-39	108.4	109.8	109.1		96.8	0.0	0.0	3.2	0.0	0.0	0.0	24.3
MR-39	109.8	111.1	110.5		85.3	0.0	0.0	14.7	0.0	0.0	0.0	19.4
MR-39	111.1	112.4	111.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	33.9
MR-39	112.4	113.7	113.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.1
MR-39	113.7	115.1	114.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.8
MR-39	115.1	116.4	115.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	18.4
MR-39	116.4	117.7	117.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.9
MR-39	117.7	119.1	118.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.9
MR-39	119.1	120.5	119.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	37.0
MR-39	120.5	121.9	121.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.0
MR-39	121.9	123.4	122.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	15.3
MR-39	123.4	124.8	124.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	23.9
MR-39	124.8	126.2	125.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	35.5
MR-39	126.2	127.5	126.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.4
MR-39	127.5	128.8	128.2		99.6	0.0	0.4	0.0	0.0	0.0	0.0	29.5
MR-39	128.8	130.1	129.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	12.2
MR-39	130.1	131.5	130.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	15.6
MR-39	131.5	132.9	132.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.3
MR-39	132.9	134.3	133.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.8
MR-39	134.3	135.7	135.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	20.1
MR-39	135.7	137.1	136.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	12.9
MR-39	137.1	138.5	137.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	16.2
MR-39	138.5	140.0	139.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	34.9
MR-39	140.0	141.4	140.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.1
MR-39	141.4	142.8	142.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.5
MR-39	142.8	144.2	143.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	20.9
MR-39	144.2	145.6	144.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.2
MR-39	145.6	147.0	146.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	40.5
MR-39	147.0	148.5	147.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5
MR-39	148.5	149.9	149.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.3
MR-39	149.9	151.3	150.6		79.9	0.0	0.0	20.1	0.0	0.0	0.0	20.0
MR-39	151.3	152.6	152.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.6
MR-39	152.6	154.1	153.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	15.2
MR-39	154.1	155.6	154.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0
MR-39	155.6	157.0	156.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.9
MR-39	157.0	158.3	157.7		93.8	0.0	6.2	0.0	0.0	0.0	0.0	60.9
MR-39	158.3	159.6	159.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	17.6
MR-39	159.6	161.0	160.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	39.9
MR-39	161.0	162.4	161.7		80.9	0.0	0.0	19.1	0.0	0.0	0.0	18.2
MR-39	162.4	163.8	163.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	33.9
MR-39	163.8	165.2	164.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.2
MR-39	165.2	166.6	165.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.6
MR-39	166.6	168.0	167.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	36.4
MR-39	168.0	169.5	168.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	34.2
MR-39	169.5	170.9	170.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.0
MR-39	170.9	172.3	171.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.4
MR-39	172.3	173.8	173.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.6
MR-39	173.8	175.3	174.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	14.0
MR-39	175.3	176.8	176.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.6
MR-39	176.8	178.3	177.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	32.5
MR-39	178.3	179.7	179.0		98.1	0.0	1.9	0.0	0.0	0.0	0.0	27.6
MR-39	179.7	181.1	180.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	20.5
MR-39	181.1	182.5	181.8		47.0	0.0	53.0	0.0	0.0	0.0	0.0	34.2
MR-39	182.5	183.9	183.2		88.1	0.0	11.9	0.0	0.0	0.0	0.0	45.8
MR-39	183.9	185.3	184.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.5
MR-39	185.3	186.7	186.0		93.5	0.0	6.5	0.0	0.0	0.0	0.0	36.6
MR-39	186.7	188.2	187.4		99.6	0.0	0.4	0.0	0.0	0.0	0.0	28.9
MR-39	188.2	189.7	188.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	15.4
MR-39	189.7	191.1	190.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.3
MR-39	191.1	192.6	191.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.3
MR-39	192.6	194.1	193.3		91.0	0.0	9.0	0.0	0.0	0.0	0.0	34.6
MR-39	194.1	195.5	194.8		66.4	31.0	0.0	2.6	0.0	0.0	0.0	24.7
MR-39	195.5	196.9	196.2		30.3	41.1	0.0	28.6	0.0	0.0	0.0	10.3
MR-39	196.9	199.0	197.6		0.3	99.7	0.0	0.0	0.0	0.0	0.0	11.9
MR-39	196.9	199.1	199.0	noise	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
MR-39	199.0	204.5	204.1		0.0	100.0	0.0	0.0	0.0	0.0	0.0	4.1
MR-39	204.5	206.7	205.6		31.9	68.1	0.0	0.0	0.0	0.0	0.0	8.2
MR-39	206.7	208.2	207.4		21.7	78.3	0.0	0.0	0.0	0.0	0.0	18.6

Drill hole	Depth From (m)	Depth To (m)	Sample Depth (m)	Comments	Illite	Chlorite	Dickite	Kaolinite	Halloysite	Dravite	S-Kaolinite	Signal to Noise
MR-39	208.1	209.6	208.8		15.3	84.7	0.0	0.0	0.0	0.0	0.0	14.2
MR-39	209.6	211.1	210.3		14.0	86.0	0.0	0.0	0.0	0.0	0.0	22.6
MR-39	211.1	212.5	211.8		63.2	36.8	0.0	0.0	0.0	0.0	0.0	25.8
MR-39	212.5	213.9	213.2		0.0	98.4	0.0	1.6	0.0	0.0	0.0	32.5
MR-39	213.9	215.3	214.6		0.0	78.8	0.0	21.2	0.0	0.0	0.0	5.4
MR-39	215.3	216.6	216.0		0.0	92.6	0.0	7.4	0.0	0.0	0.0	24.5
MR-39	216.6	217.9	217.3		0.0	73.8	0.0	26.2	0.0	0.0	0.0	8.2
MR-39	217.9	219.2	218.6		6.0	86.1	0.0	7.9	0.0	0.0	0.0	31.2
MR-39	219.2	220.6	219.9		0.0	93.8	0.0	6.2	0.0	0.0	0.0	24.0
MR-39	220.6	222.0	221.3		0.0	95.7	0.0	4.3	0.0	0.0	0.0	32.2
MR-39	222.0	223.4	222.7		0.0	73.1	0.0	26.9	0.0	0.0	0.0	1.5
MR-40	34.0	35.4	34.7		85.0	15.0	0.0	0.0	0.0	0.0	0.0	24.2
MR-40	35.4	36.8	36.1		81.5	17.2	0.0	1.3	0.0	0.0	0.0	19.5
MR-40	36.8	38.2	37.5		92.8	0.0	0.0	7.2	0.0	0.0	0.0	19.4
MR-40	38.2	39.6	38.9		76.6	0.0	0.0	23.4	0.0	0.0	0.0	9.5
MR-40	39.6	41.0	40.3		92.1	0.0	0.0	7.9	0.0	0.0	0.0	12.8
MR-40	41.0	42.5	41.8		70.8	17.8	0.0	11.4	0.0	0.0	0.0	13.4
MR-40	42.5	43.9	43.2		80.2	0.0	0.0	19.8	0.0	0.0	0.0	14.7
MR-40	43.9	45.3	44.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	11.0
MR-40	45.3	46.8	46.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	23.8
MR-40	46.8	48.2	47.5		67.0	26.8	0.0	6.2	0.0	0.0	0.0	16.4
MR-40	48.2	49.6	48.9		70.5	23.4	0.0	6.1	0.0	0.0	0.0	5.7
MR-40	49.6	51.1	50.4		95.3	4.7	0.0	0.0	0.0	0.0	0.0	18.1
MR-40	51.1	52.5	51.8		91.6	8.4	0.0	0.0	0.0	0.0	0.0	8.8
MR-40	52.5	53.9	53.2		96.0	0.0	0.0	4.0	0.0	0.0	0.0	11.5
MR-40	53.9	55.4	54.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1
MR-40	55.4	56.9	56.1		92.5	7.5	0.0	0.0	0.0	0.0	0.0	21.3
MR-40	56.3	56.5	56.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	60.4
MR-40	56.9	58.4	57.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.6
MR-40	58.4	59.8	59.1		97.5	2.5	0.0	0.0	0.0	0.0	0.0	30.4
MR-40	59.8	61.2	60.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	19.6
MR-40	61.2	62.6	61.9		96.1	3.9	0.0	0.0	0.0	0.0	0.0	23.0
MR-40	62.6	64.1	63.4		86.6	13.4	0.0	0.0	0.0	0.0	0.0	15.0
MR-40	64.1	65.5	64.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	14.9
MR-40	65.5	66.9	66.2		96.3	3.7	0.0	0.0	0.0	0.0	0.0	10.0
MR-40	66.9	68.4	67.7		98.9	1.1	0.0	0.0	0.0	0.0	0.0	9.4
MR-40	68.4	69.9	69.1		93.4	6.6	0.0	0.0	0.0	0.0	0.0	26.7
MR-40	69.9	71.4	70.6		90.3	9.7	0.0	0.0	0.0	0.0	0.0	18.4
MR-40	71.4	72.8	72.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	20.9
MR-40	72.8	74.2	73.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.4
MR-40	74.2	75.6	74.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	23.3
MR-40	75.6	77.1	76.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	15.9
MR-40	77.1	78.6	77.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	35.7
MR-40	78.6	80.1	79.3		94.7	5.3	0.0	0.0	0.0	0.0	0.0	25.2
MR-40	80.1	81.5	80.8		91.6	8.4	0.0	0.0	0.0	0.0	0.0	28.0
MR-40	81.5	83.0	82.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.5
MR-40	83.0	84.5	83.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	18.0
MR-40	84.5	85.9	85.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.0
MR-40	85.9	87.4	86.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.6
MR-40	87.4	88.9	88.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	34.1
MR-40	88.9	90.3	89.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	48.4
MR-40	90.3	91.7	91.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.7
MR-40	91.7	93.1	92.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	39.8
MR-40	93.6	93.8	93.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	38.2
MR-40	93.1	94.5	93.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.5
MR-40	94.5	95.9	95.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	14.2
MR-40	95.9	97.3	96.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.6
MR-40	97.3	98.7	98.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.8
MR-40	98.7	100.1	99.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.5
MR-40	100.1	101.5	100.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	17.5
MR-40	101.5	102.9	102.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	35.0
MR-40	102.9	104.3	103.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	35.7
MR-40	104.3	105.7	105.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.5
MR-40	105.7	107.0	106.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.8
MR-40	107.0	108.4	107.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	36.4
MR-40	108.4	109.8	109.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.5
MR-40	109.8	111.2	110.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.9
MR-40	111.2	112.7	111.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	33.9
MR-40	112.7	114.2	113.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.5
MR-40	114.2	115.6	114.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	17.4
MR-40	115.6	117.0	116.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.1
MR-40	117.0	118.4	117.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	32.6
MR-40	117.5	117.7	117.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	34.6
MR-40	118.4	119.8	119.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	23.0
MR-40	119.8	121.1	120.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	20.7
MR-40	121.1	122.4	121.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	20.5
MR-40	122.4	123.6	123.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	34.7
MR-40	123.0	123.2	123.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	45.0
MR-40	123.6	125.0	124.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	23.3

Drill hole	Depth From (m)	Depth To (m)	Sample Depth (m)	Comments	Illite	Chlorite	Dickite	Kaolinite	Halloysite	Dravite	S-Kaolinite	Signal to Noise
MR-40	125.0	126.4	125.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.5
MR-40	125.1	125.3	125.2		98.4	0.0	1.6	0.0	0.0	0.0	0.0	62.2
MR-40	126.4	127.7	127.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	16.0
MR-40	127.7	129.0	128.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	35.3
MR-40	129.0	130.3	129.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.0
MR-40	130.3	131.6	131.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	18.9
MR-40	132.3	132.5	132.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	35.6
MR-40	131.6	132.8	132.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	19.1
MR-40	132.5	134.0	133.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	36.2
MR-40	134.0	135.3	134.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.6
MR-40	135.3	136.7	136.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	38.6
MR-40	136.7	138.1	137.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.7
MR-40	138.1	139.5	138.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.3
MR-40	139.5	140.9	140.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	34.2
MR-40	140.9	142.3	141.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	33.5
MR-40	142.3	143.6	143.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	12.7
MR-40	143.6	145.0	144.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.0
MR-40	145.0	146.4	145.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	20.9
MR-40	146.4	147.7	147.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.0
MR-40	147.7	149.1	148.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	38.6
MR-40	149.1	150.5	149.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.5
MR-40	150.5	152.0	151.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	41.6
MR-40	152.0	153.5	152.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	20.5
MR-40	153.2	153.4	153.3		55.7	0.0	44.3	0.0	0.0	0.0	0.0	42.4
MR-40	153.5	155.0	154.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.1
MR-40	155.0	156.4	155.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	18.7
MR-40	156.4	157.8	157.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	40.6
MR-40	157.8	159.2	158.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.6
MR-40	159.2	160.6	159.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.9
MR-40	160.6	162.0	161.3		98.2	0.0	0.0	1.8	0.0	0.0	0.0	20.5
MR-40	162.0	163.4	162.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.6
MR-40	163.4	164.9	164.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	35.9
MR-40	164.9	166.3	165.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	42.4
MR-40	166.3	168.4	167.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	15.8
MR-40	168.3	168.5	168.4		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
MR-40	168.4	170.5	169.8		27.9	0.0	0.0	72.1	0.0	0.0	0.0	5.5
MR-40	170.5	171.9	171.2		24.5	0.0	75.5	0.0	0.0	0.0	0.0	38.3
MR-40	171.2	171.4	171.3		94.7	0.0	5.3	0.0	0.0	0.0	0.0	36.4
MR-40	171.9	173.3	172.6		19.6	0.0	80.4	0.0	0.0	0.0	0.0	36.5
MR-40	173.3	174.8	174.0		78.9	0.0	0.0	21.1	0.0	0.0	0.0	9.6
MR-40	174.6	174.8	174.7		89.6	0.0	10.4	0.0	0.0	0.0	0.0	76.7
MR-40	174.8	176.3	175.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	11.7
MR-40	176.3	177.7	177.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	37.9
MR-40	177.7	179.1	178.4		28.8	0.0	71.2	0.0	0.0	0.0	0.0	48.4
MR-40	179.1	180.5	179.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	36.7
MR-40	180.5	182.0	181.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.4
MR-40	182.0	183.5	182.7		95.7	0.0	4.3	0.0	0.0	0.0	0.0	44.2
MR-40	183.5	185.0	184.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	36.0
MR-40	185.0	186.4	185.7		37.2	0.0	62.8	0.0	0.0	0.0	0.0	19.3
MR-40	185.6	185.8	185.7		91.6	0.0	8.4	0.0	0.0	0.0	0.0	65.7
MR-40	186.4	187.8	187.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7
MR-40	187.8	189.2	188.5		92.0	0.0	8.0	0.0	0.0	0.0	0.0	37.7
MR-40	189.2	190.7	190.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	15.5
MR-40	190.7	192.4	191.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.6
MR-40	192.4	193.5	193.0		74.4	25.6	0.0	0.0	0.0	0.0	0.0	24.9
MR-40	193.5	195.0	194.3		63.5	36.5	0.0	0.0	0.0	0.0	0.0	38.3
MR-40	195.0	196.4	195.7		51.4	48.6	0.0	0.0	0.0	0.0	0.0	16.1
MR-40	196.4	197.8	197.1		37.9	62.1	0.0	0.0	0.0	0.0	0.0	10.2
MR-40	197.8	199.3	198.6		56.0	44.0	0.0	0.0	0.0	0.0	0.0	18.4
MR-40	199.3	200.7	200.0		30.5	69.5	0.0	0.0	0.0	0.0	0.0	16.3
MR-40	200.7	202.1	201.4		51.6	48.4	0.0	0.0	0.0	0.0	0.0	21.5
MR-40	202.1	203.6	202.9		51.5	48.5	0.0	0.0	0.0	0.0	0.0	30.2
MR-40	203.6	205.0	204.3		49.2	50.8	0.0	0.0	0.0	0.0	0.0	30.0
MR-40	205.0	206.4	205.7		34.2	65.8	0.0	0.0	0.0	0.0	0.0	18.5
MR-40	206.4	207.9	207.2		68.4	31.6	0.0	0.0	0.0	0.0	0.0	13.5
MR-41	41.0	52.4	46.7		97.5	2.5	0.0	0.0	0.0	0.0	0.0	10.3
MR-41	52.4	53.8	53.1		61.2	17.2	0.0	21.6	0.0	0.0	0.0	13.5
MR-41	53.8	55.2	54.5		91.1	0.0	0.0	8.9	0.0	0.0	0.0	14.0
MR-41	55.2	56.6	55.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.4
MR-41	56.6	58.0	57.3		91.2	0.0	0.0	8.8	0.0	0.0	0.0	6.4
MR-41	58.0	59.4	58.7		99.2	0.0	0.0	0.8	0.0	0.0	0.0	12.2
MR-41	59.4	60.9	60.1		74.9	0.0	0.0	25.1	0.0	0.0	0.0	11.5
MR-41	60.9	62.4	61.6		97.2	0.0	0.0	2.8	0.0	0.0	0.0	20.2
MR-41	62.4	68.1	65.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	19.4
MR-41	68.1	73.8	71.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.0
MR-41	73.8	75.2	74.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	18.4
MR-41	74.2	74.4	74.3	Fault	88.0	4.1	0.0	7.9	0.0	0.0	0.0	51.9
MR-41	75.2	76.6	75.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.4
MR-41	76.3	76.5	76.4	Fault	100.0	0.0	0.0	0.0	0.0	0.0	0.0	47.4

Drill hole	Depth From (m)	Depth To (m)	Sample Depth (m)	Comments	Illite	Chlorite	Dickite	Kaolinite	Halloysite	Dravite	S-Kaolinite	Signal to Noise
MR-41	76.6	78.1	77.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.9
MR-41	77.0	77.2	77.1	Fault	100.0	0.0	0.0	0.0	0.0	0.0	0.0	34.3
MR-41	78.1	79.6	78.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.9
MR-41	79.6	81.0	80.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.5
MR-41	81.0	82.5	81.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	23.9
MR-41	82.5	84.0	83.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	33.7
MR-41	84.0	85.4	84.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.2
MR-41	85.4	86.8	86.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.2
MR-41	86.8	88.2	87.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.8
MR-41	86.9	87.1	87.0	Bed	97.7	0.0	2.3	0.0	0.0	0.0	0.0	30.0
MR-41	88.2	89.7	89.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	35.4
MR-41	883.5	88.7	88.6	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	36.4
MR-41	89.7	91.2	90.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.4
MR-41	91.2	92.7	91.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.3
MR-41	92.7	94.1	93.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.6
MR-41	94.1	95.5	94.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3
MR-41	95.5	96.9	96.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.1
MR-41	96.9	98.3	97.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.5
MR-41	98.3	99.8	99.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	11.3
MR-41	99.8	101.3	100.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	12.0
MR-41	101.3	102.7	102.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.1
MR-41	102.7	104.2	103.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	39.8
MR-41	104.2	105.7	104.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.7
MR-41	105.7	107.1	106.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	16.4
MR-41	107.1	108.7	107.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.8
MR-41	107.6	107.8	107.7	Fault	93.9	0.0	0.0	6.1	0.0	0.0	0.0	21.1
MR-41	108.7	110.3	109.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	19.3
MR-41	110.3	111.8	111.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.3
MR-41	111.8	113.2	112.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.2
MR-41	113.2	114.6	113.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.4
MR-41	114.6	116.1	115.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.4
MR-41	116.1	117.5	116.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	18.3
MR-41	116.8	117.0	116.9	Fault	98.2	0.0	1.8	0.0	0.0	0.0	0.0	50.3
MR-41	117.5	118.9	118.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.6
MR-41	118.9	120.4	119.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	36.4
MR-41	119.6	119.8	119.7	Bed	24.9	0.0	0.0	0.0	0.0	0.0	75.1	28.6
MR-41	120.4	121.9	121.2		99.8	0.0	0.0	0.2	0.0	0.0	0.0	22.7
MR-41	121.9	123.4	122.7		88.6	0.0	0.0	11.4	0.0	0.0	0.0	19.8
MR-41	123.4	124.9	124.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.0
MR-41	124.9	126.3	125.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	19.5
MR-41	126.3	127.7	127.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.4
MR-41	127.7	129.2	128.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.7
MR-41	128.8	129.0	128.9	Bed	0.0	0.0	0.0	0.0	0.0	0.0	100.0	48.6
MR-41	129.2	130.7	129.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0
MR-41	130.7	132.2	131.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	18.3
MR-41	132.2	133.6	132.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	19.3
MR-41	132.3	132.5	132.4	Bed	67.1	0.0	32.9	0.0	0.0	0.0	0.0	50.9
MR-41	133.6	135.0	134.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.5
MR-41	135.0	136.4	135.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	34.5
MR-41	136.4	137.8	137.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.4
MR-41	137.8	139.3	138.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	40.5
MR-41	138.1	138.3	138.2	Fault	98.2	0.0	1.8	0.0	0.0	0.0	0.0	50.3
MR-41	139.3	140.8	140.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	17.9
MR-41	140.0	140.2	140.1	Fault	99.5	0.0	0.5	0.0	0.0	0.0	0.0	61.9
MR-41	140.8	142.2	141.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.1
MR-41	142.2	143.6	142.9		90.2	0.0	0.0	9.8	0.0	0.0	0.0	19.1
MR-41	143.6	145.0	144.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.1
MR-41	145.0	146.4	145.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.3
MR-41	145.6	145.8	145.7	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	41.8
MR-41	146.4	147.8	147.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.0
MR-41	147.8	149.2	148.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	20.6
MR-41	149.2	150.7	150.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.1
MR-41	150.2	150.4	150.3	Fault	97.7	0.0	2.3	0.0	0.0	0.0	0.0	58.7
MR-41	150.7	152.2	151.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.3
MR-41	152.2	153.7	152.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.3
MR-41	153.7	155.1	154.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	37.3
MR-41	154.8	155.0	154.9	Fault	100.0	0.0	0.0	0.0	0.0	0.0	0.0	59.8
MR-41	155.1	156.6	155.8		99.4	0.0	0.6	0.0	0.0	0.0	0.0	30.2
MR-41	156.6	158.1	157.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	38.7
MR-41	158.1	159.5	158.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.5
MR-41	159.5	161.0	160.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.9
MR-41	161.0	162.5	161.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	19.2
MR-41	161.9	162.1	162.0	Fault	100.0	0.0	0.0	0.0	0.0	0.0	0.0	43.6
MR-41	162.5	163.9	163.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	23.1
MR-41	163.9	165.3	164.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.1
MR-41	165.3	166.7	166.0		79.3	0.0	0.0	6.4	0.0	14.3	0.0	16.0
MR-41	166.7	168.1	167.4		79.1	0.0	0.0	20.9	0.0	0.0	0.0	1.8
MR-41	167.8	168.0	167.9	Bed	74.5	0.0	25.5	0.0	0.0	0.0	0.0	34.2
MR-41	168.2	169.6	168.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	17.1

Drill hole	Depth From (m)	Depth To (m)	Sample Depth (m)	Comments	Illite	Chlorite	Dickite	Kaolinite	Halloysite	Dravite	S-Kaolinite	Signal to Noise
MR-41	169.4	169.6	169.5	Fault	97.8	0.0	0.0	2.2	0.0	0.0	0.0	16.4
MR-41	169.6	171.0	170.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.6
MR-41	169.7	169.9	169.8	Fault	91.3	0.0	8.7	0.0	0.0	0.0	0.0	41.7
MR-41	171.0	172.5	171.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	12.9
MR-41	172.5	174.0	173.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.8
MR-41	174.0	175.5	174.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	16.6
MR-41	175.5	176.9	176.2		76.8	0.0	23.2	0.0	0.0	0.0	0.0	24.9
MR-41	175.9	176.1	176.0	Fault	98.7	0.0	1.3	0.0	0.0	0.0	0.0	14.3
MR-41	176.9	178.4	177.6		59.7	0.0	40.3	0.0	0.0	0.0	0.0	35.5
MR-41	178.4	179.9	179.1		71.2	0.0	28.8	0.0	0.0	0.0	0.0	19.3
MR-41	179.3	179.5	179.4	Bed	0.0	0.0	0.0	0.0	0.0	0.0	100.0	17.5
MR-41	179.9	181.3	180.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.7
MR-41	181.3	182.7	182.0		89.5	0.0	10.5	0.0	0.0	0.0	0.0	20.6
MR-41	182.7	184.1	183.4		58.5	0.0	41.5	0.0	0.0	0.0	0.0	7.7
MR-41	184.1	185.6	184.9		29.0	0.0	71.0	0.0	0.0	0.0	0.0	39.5
MR-41	185.6	187.0	186.3		45.3	0.0	54.7	0.0	0.0	0.0	0.0	10.6
MR-41	187.0	188.4	187.7		31.4	0.0	68.6	0.0	0.0	0.0	0.0	26.2
MR-41	188.4	189.9	189.2		44.8	0.0	55.2	0.0	0.0	0.0	0.0	27.3
MR-41	189.9	191.3	190.6		38.6	0.0	61.4	0.0	0.0	0.0	0.0	33.8
MR-41	191.3	192.4	191.9		48.1	0.0	51.9	0.0	0.0	0.0	0.0	19.2
MR-41	192.4	194.4	193.3		51.3	0.0	48.7	0.0	0.0	0.0	0.0	19.1
MR-41	194.4	195.6	195.0		72.9	0.0	0.0	27.1	0.0	0.0	0.0	11.4
MR-41	195.6	197.0	196.3		84.2	15.8	0.0	0.0	0.0	0.0	0.0	24.2
MR-41	197.0	198.5	197.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	18.8
MR-41	198.5	203.0	200.8		94.0	0.0	0.0	6.0	0.0	0.0	0.0	18.6
MR-43	33.3	34.7	34.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	11.4
MR-43	34.7	36.1	35.4		84.2	15.8	0.0	0.0	0.0	0.0	0.0	24.2
MR-43	36.1	37.5	36.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	18.8
MR-43	37.5	38.9	38.2		74.3	25.7	0.0	0.0	0.0	0.0	0.0	18.6
MR-43	38.9	40.3	39.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5
MR-43	40.3	41.8	41.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5
MR-43	41.8	43.2	42.5		83.9	16.1	0.0	0.0	0.0	0.0	0.0	10.4
MR-43	43.2	44.6	43.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	15.4
MR-43	44.6	46.1	45.4		91.1	8.9	0.0	0.0	0.0	0.0	0.0	14.7
MR-43	46.1	47.5	46.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1
MR-43	47.5	48.9	48.2		86.9	13.1	0.0	0.0	0.0	0.0	0.0	10.0
MR-43	48.9	50.4	49.7		83.8	16.2	0.0	0.0	0.0	0.0	0.0	8.7
MR-43	50.4	51.9	51.1		59.5	40.5	0.0	0.0	0.0	0.0	0.0	5.3
MR-43	51.9	53.4	52.6		88.7	11.3	0.0	0.0	0.0	0.0	0.0	12.7
MR-43	53.4	54.8	54.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	5.4
MR-43	54.8	56.2	55.5		80.4	19.6	0.0	0.0	0.0	0.0	0.0	10.3
MR-43	56.6	56.8	56.7		92.9	7.1	0.0	0.0	0.0	0.0	0.0	27.3
MR-43	56.2	57.6	56.9		87.4	12.6	0.0	0.0	0.0	0.0	0.0	22.7
MR-43	57.6	59.1	58.4		78.4	21.6	0.0	0.0	0.0	0.0	0.0	19.9
MR-43	59.1	60.6	59.8		78.2	21.8	0.0	0.0	0.0	0.0	0.0	28.0
MR-43	60.6	62.1	61.3		64.8	35.2	0.0	0.0	0.0	0.0	0.0	8.5
MR-43	62.1	63.5	62.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	17.2
MR-43	63.5	65.0	64.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5
MR-43	65.0	66.5	65.7		98.1	0.0	0.0	1.9	0.0	0.0	0.0	9.6
MR-43	66.5	67.9	67.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	19.3
MR-43	67.9	69.3	68.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0
MR-43	69.3	70.7	70.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.0
MR-43	70.7	72.2	71.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	20.4
MR-43	72.2	73.6	72.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	20.9
MR-43	73.3	73.5	73.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	36.3
MR-43	73.6	75.0	74.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.9
MR-43	75.0	76.4	75.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.3
MR-43	76.4	77.8	77.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.4
MR-43	77.8	79.2	78.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.2
MR-43	79.2	80.7	80.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.5
MR-43	80.7	82.1	81.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	43.7
MR-43	82.1	83.5	82.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.2
MR-43	83.5	85.0	84.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	16.1
MR-43	85.0	86.4	85.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	35.1
MR-43	86.4	87.8	87.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	37.2
MR-43	87.8	89.2	88.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.7
MR-43	89.2	90.6	89.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.5
MR-43	90.6	92.0	91.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.1
MR-43	92.0	93.4	92.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.2
MR-43	93.4	94.8	94.1		91.5	8.5	0.0	0.0	0.0	0.0	0.0	27.4
MR-43	94.8	96.2	95.5		87.7	12.3	0.0	0.0	0.0	0.0	0.0	30.1
MR-43	96.2	97.7	97.0		86.0	14.0	0.0	0.0	0.0	0.0	0.0	24.8
MR-43	97.7	99.0	98.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.1
MR-43	99.0	100.3	99.7		93.0	7.0	0.0	0.0	0.0	0.0	0.0	26.6
MR-43	100.3	101.7	101.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.5
MR-43	101.7	103.2	102.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	17.9
MR-43	103.2	104.7	104.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	20.6
MR-43	104.7	106.2	105.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0
MR-43	106.2	107.6	106.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.6

Drill hole	Depth From (m)	Depth To (m)	Sample Depth (m)	Comments	Illite	Chlorite	Dickite	Kaolinite	Halloysite	Dravite	S-Kaolinite	Signal to Noise
MR-43	107.6	109.0	108.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.7
MR-43	109.0	110.4	109.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	23.3
MR-43	111.6	111.8	111.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.6
MR-43	110.4	111.8	111.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	48.7
MR-43	111.8	113.2	112.5		93.9	6.1	0.0	0.0	0.0	0.0	0.0	32.8
MR-43	113.2	114.7	114.0		88.1	11.9	0.0	0.0	0.0	0.0	0.0	28.7
MR-43	114.7	116.1	115.4		96.3	3.7	0.0	0.0	0.0	0.0	0.0	21.1
MR-43	116.1	117.5	116.8		96.7	3.3	0.0	0.0	0.0	0.0	0.0	20.9
MR-43	117.5	118.8	118.2		80.7	19.3	0.0	0.0	0.0	0.0	0.0	23.5
MR-43	118.8	120.2	119.5		86.7	13.3	0.0	0.0	0.0	0.0	0.0	23.6
MR-43	120.2	121.6	120.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.9
MR-43	121.6	123.0	122.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.0
MR-43	122.5	122.7	122.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	44.9
MR-43	123.0	124.4	123.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.2
MR-43	124.4	125.8	125.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.4
MR-43	124.9	125.1	125.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	37.0
MR-43	125.8	127.2	126.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.5
MR-43	127.2	128.5	127.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.4
MR-43	128.5	129.8	129.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.5
MR-43	129.8	131.2	130.5		91.8	0.0	0.0	8.2	0.0	0.0	0.0	16.8
MR-43	131.2	132.7	132.0		93.5	0.0	0.0	6.5	0.0	0.0	0.0	18.6
MR-43	132.7	134.2	133.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.6
MR-43	134.2	135.7	135.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	17.5
MR-43	135.7	137.1	136.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.2
MR-43	137.1	138.5	137.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	23.5
MR-43	138.5	140.0	139.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.8
MR-43	140.0	141.5	140.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	34.4
MR-43	141.5	143.0	142.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	18.7
MR-43	143.0	144.5	143.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	43.4
MR-43	144.5	145.9	145.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.1
MR-43	145.9	147.3	146.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	18.4
MR-43	147.1	147.3	147.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	44.1
MR-43	147.3	148.7	148.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	14.6
MR-43	148.7	150.1	149.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	16.6
MR-43	150.1	151.5	150.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	23.3
MR-43	151.0	151.2	151.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.5
MR-43	151.5	152.8	152.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.1
MR-43	152.8	154.2	153.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.0
MR-43	154.2	155.6	154.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0
MR-43	155.6	157.1	156.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	39.1
MR-43	156.8	157.0	156.9		90.1	0.0	9.9	0.0	0.0	0.0	0.0	35.6
MR-43	157.1	158.5	157.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	44.3
MR-43	157.8	158.0	157.9		96.5	0.0	3.5	0.0	0.0	0.0	0.0	43.9
MR-43	158.5	159.9	159.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	44.8
MR-43	159.9	161.3	160.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	34.6
MR-43	161.3	162.7	162.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	36.2
MR-43	162.7	164.1	163.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.9
MR-43	164.1	165.6	164.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	33.1
MR-43	165.6	167.1	166.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	41.2
MR-43	167.1	168.6	167.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	32.8
MR-43	168.6	170.2	169.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	45.8
MR-43	170.2	171.7	170.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	37.2
MR-43	171.7	173.2	172.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.6
MR-43	172.2	172.4	172.3		0.0	0.0	0.0	0.0	0.0	0.0	100.0	27.7
MR-43	173.2	174.6	173.9		22.9	0.0	0.0	77.1	0.0	0.0	0.0	12.5
MR-43	174.6	176.0	175.3		19.3	0.0	0.0	0.0	0.0	0.0	80.7	9.9
MR-43	176.0	177.4	176.7		24.9	0.0	0.0	0.0	0.0	0.0	75.1	8.4
MR-43	177.2	177.4	177.3		87.2	0.0	12.8	0.0	0.0	0.0	0.0	76.9
MR-43	177.4	178.9	178.2		19.9	0.0	80.1	0.0	0.0	0.0	0.0	33.6
MR-43	178.9	180.3	179.6		20.7	0.0	79.3	0.0	0.0	0.0	0.0	40.4
MR-43	180.3	181.7	181.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.1
MR-43	181.7	183.0	182.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	42.2
MR-43	183.0	184.4	183.8		67.6	0.0	32.4	0.0	0.0	0.0	0.0	31.9
MR-43	184.4	185.7	185.1		76.2	0.0	23.8	0.0	0.0	0.0	0.0	37.7
MR-43	185.7	187.0	186.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.0
MR-43	187.0	188.4	187.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.5
MR-43	188.4	189.8	189.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	38.0
MR-43	189.8	191.3	190.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	48.1
MR-43	191.3	192.7	192.0		96.6	0.0	3.4	0.0	0.0	0.0	0.0	40.4
MR-43	192.7	194.1	193.4		94.7	0.0	5.3	0.0	0.0	0.0	0.0	27.3
MR-43	194.1	195.6	194.9		94.0	0.0	6.0	0.0	0.0	0.0	0.0	25.3
MR-43	195.6	197.1	196.3		91.3	0.0	8.7	0.0	0.0	0.0	0.0	66.4
MR-43	195.6	195.8	195.7		91.0	0.0	9.0	0.0	0.0	0.0	0.0	68.8
MR-43	197.1	198.6	197.8		93.3	0.0	6.7	0.0	0.0	0.0	0.0	80.2
MR-43	198.6	200.0	199.3		91.7	0.0	8.3	0.0	0.0	0.0	0.0	43.1
MR-43	200.0	201.4	200.7		96.4	0.0	3.6	0.0	0.0	0.0	0.0	48.6
MR-43	201.4	202.4	201.9		99.5	0.0	0.5	0.0	0.0	0.0	0.0	39.0
MR-43	202.4	204.3	203.4		92.1	0.0	7.9	0.0	0.0	0.0	0.0	35.7
MR-43	204.3	205.8	205.1		80.2	19.8	0.0	0.0	0.0	0.0	0.0	35.8

Drill hole	Depth From (m)	Depth To (m)	Sample Depth (m)	Comments	Illite	Chlorite	Dickite	Kaolinite	Halloysite	Dravite	S-Kaolinite	Signal to Noise
MR-43	205.8	207.3	206.6		67.0	33.0	0.0	0.0	0.0	0.0	0.0	17.7
MR-43	207.3	208.8	208.1		82.0	18.0	0.0	0.0	0.0	0.0	0.0	37.2
MR-43	208.8	210.0	209.4		46.7	53.3	0.0	0.0	0.0	0.0	0.0	17.7
MR-43	210.0	211.2	210.6		48.1	51.9	0.0	0.0	0.0	0.0	0.0	21.1
MR-43	211.2	212.5	211.9		48.4	51.6	0.0	0.0	0.0	0.0	0.0	24.0
MR-43	212.5	213.8	213.2		0.0	88.8	0.0	11.2	0.0	0.0	0.0	20.8
MR-43	213.8	215.1	214.5		0.0	92.0	0.0	8.0	0.0	0.0	0.0	16.1
MR-43	215.1	216.5	215.8		0.0	91.9	0.0	8.1	0.0	0.0	0.0	33.4
MR-43	216.5	217.9	217.2		0.0	93.8	0.0	6.2	0.0	0.0	0.0	24.9
MR-43	217.9	219.3	218.6		1.9	75.1	0.0	23.0	0.0	0.0	0.0	15.3
MR-43	219.3	220.7	220.0		0.0	94.0	0.0	6.0	0.0	0.0	0.0	17.4
MR-43	220.7	224.9	222.8		0.0	75.8	0.0	24.2	0.0	0.0	0.0	5.9
MR-48	20.0	21.8	20.9		91.3	0.0	0.0	8.7	0.0	0.0	0.0	15.5
MR-48	21.8	23.6	22.7		87.8	0.0	0.0	1.0	0.0	11.2	0.0	23.6
MR-48	23.6	25.4	24.5		90.3	0.0	0.0	9.7	0.0	0.0	0.0	20.1
MR-48	25.4	26.8	26.1		66.4	0.0	0.0	33.6	0.0	0.0	0.0	17.6
MR-48	26.8	28.2	27.5		90.0	0.0	0.0	10.0	0.0	0.0	0.0	13.5
MR-48	28.2	29.6	28.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	19.6
MR-48	29.6	31.1	30.4		88.8	0.0	0.0	11.2	0.0	0.0	0.0	12.7
MR-48	31.1	32.6	31.9		83.6	0.0	0.0	16.4	0.0	0.0	0.0	15.0
MR-48	32.6	34.1	33.4		98.0	0.0	0.0	2.0	0.0	0.0	0.0	19.8
MR-48	34.1	36.3	34.8		98.7	0.0	0.0	1.3	0.0	0.0	0.0	13.5
MR-48	36.3	38.5	37.8		80.4	0.0	0.0	19.6	0.0	0.0	0.0	14.2
MR-48	38.5	39.9	39.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	18.5
MR-48	39.9	41.3	40.6		90.6	0.0	0.0	9.4	0.0	0.0	0.0	19.4
MR-48	40.4	40.6	40.5	Fault	76.4	0.0	0.0	23.6	0.0	0.0	0.0	10.5
MR-48	41.3	42.7	42.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	19.7
MR-48	42.7	44.2	43.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.8
MR-48	44.2	45.7	44.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	18.2
MR-48	45.7	47.1	46.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.7
MR-48	47.1	48.6	47.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.3
MR-48	48.6	50.1	49.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	6.7
MR-48	50.1	51.5	50.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	16.9
MR-48	50.6	50.8	50.7	DUPL/poor	66.7	0.0	0.0	33.3	0.0	0.0	0.0	30.4
MR-48	51.5	53.0	52.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	23.2
MR-48	53.0	54.5	53.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	20.5
MR-48	54.5	55.9	55.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.1
MR-48	56.4	56.6	56.5	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.4
MR-48	55.9	57.3	56.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.9
MR-48	57.3	58.7	58.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.1
MR-48	58.7	60.1	59.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.4
MR-48	60.1	61.5	60.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.8
MR-48	61.1	61.3	61.2	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	49.2
MR-48	61.5	62.9	62.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	14.6
MR-48	62.9	64.4	63.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.9
MR-48	65.3	65.5	65.4	Bed	66.5	0.0	33.5	0.0	0.0	0.0	0.0	58.8
MR-48	64.4	65.8	65.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	41.7
MR-48	65.8	67.2	66.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.0
MR-48	67.2	68.7	68.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	18.7
MR-48	68.7	70.1	69.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	19.6
MR-48	68.9	69.1	69.0	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	23.8
MR-48	70.1	71.5	70.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	20.4
MR-48	71.5	73.0	72.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.2
MR-48	73.0	74.4	73.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	32.3
MR-48	74.4	75.8	75.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.1
MR-48	75.8	77.2	76.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	17.9
MR-48	77.2	78.7	77.9		99.7	0.0	0.0	0.3	0.0	0.0	0.0	21.3
MR-48	78.9	79.1	79.0	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	17.2
MR-48	78.7	80.2	79.4		93.6	0.0	0.0	6.4	0.0	0.0	0.0	14.2
MR-48	80.2	81.6	80.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	20.4
MR-48	81.6	83.1	82.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.0
MR-48	83.4	83.6	83.5	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.7
MR-48	83.1	84.6	83.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	33.7
MR-48	84.6	86.0	85.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.2
MR-48	86.0	87.8	86.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	14.2
MR-48	87.8	89.6	88.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.1
MR-48	89.6	91.4	90.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.6
MR-48	91.4	92.5	91.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	18.8
MR-48	92.5	93.6	93.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.4
MR-48	94.3	94.5	94.4	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.5
MR-48	93.6	94.6	94.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0
MR-48	94.6	96.0	95.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.8
MR-48	96.0	97.4	96.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.2
MR-48	97.4	98.9	98.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.6
MR-48	98.9	100.3	99.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.6
MR-48	100.3	101.7	101.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.4
MR-48	101.2	101.4	101.3	Bed	92.4	0.0	0.0	7.6	0.0	0.0	0.0	11.5
MR-48	101.7	103.2	102.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	16.1
MR-48	103.2	104.6	103.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.6

Drill hole	Depth From (m)	Depth To (m)	Sample Depth (m)	Comments	Illite	Chlorite	Dickite	Kaolinite	Halloysite	Dravite	S-Kaolinite	Signal to Noise
MR-48	104.6	106.0	105.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	32.6
MR-48	106.0	107.5	106.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.1
MR-48	107.5	108.9	108.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	33.7
MR-48	108.9	110.3	109.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.4
MR-48	110.3	111.8	111.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.9
MR-48	111.8	113.2	112.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.6
MR-48	113.2	114.6	113.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	13.8
MR-48	114.6	116.1	115.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.7
MR-48	116.1	117.6	116.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	44.0
MR-48	117.6	119.1	118.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.4
MR-48	119.1	120.5	119.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	38.8
MR-48	120.5	121.9	121.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	41.0
MR-48	121.9	123.3	122.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.8
MR-48	122.3	122.5	122.4	Fault	100.0	0.0	0.0	0.0	0.0	0.0	0.0	64.2
MR-48	123.3	124.8	124.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.1
MR-48	124.8	126.2	125.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.9
MR-48	126.2	127.6	126.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	19.5
MR-48	127.6	129.1	128.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	14.8
MR-48	128.0	128.2	128.1	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	41.9
MR-48	129.1	130.5	129.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	32.6
MR-48	130.5	131.9	131.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	19.9
MR-48	131.9	133.4	132.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	32.8
MR-48	133.4	134.9	134.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.2
MR-48	134.9	136.4	135.6	Fe slope?	100.0	0.0	0.0	0.0	0.0	0.0	0.0	20.7
MR-48	136.1	136.3	136.2	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.4
MR-48	136.4	137.8	137.1		88.6	0.0	0.0	11.4	0.0	0.0	0.0	14.7
MR-48	137.8	139.2	138.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.4
MR-48	139.2	140.6	139.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	18.2
MR-48	140.6	142.1	141.4		84.1	0.0	0.0	15.9	0.0	0.0	0.0	11.4
MR-48	142.1	143.5	142.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.0
MR-48	143.5	144.9	144.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	38.5
MR-48	144.9	146.4	145.7		89.8	0.0	10.2	0.0	0.0	0.0	0.0	43.9
MR-48	145.9	146.1	146.0	Fault	87.4	0.0	12.6	0.0	0.0	0.0	0.0	29.2
MR-48	146.4	147.8	147.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	40.9
MR-48	146.9	147.1	147.0	Fault	90.3	0.0	9.7	0.0	0.0	0.0	0.0	85.3
MR-48	147.8	149.2	148.5		82.8	0.0	17.2	0.0	0.0	0.0	0.0	24.7
MR-48	149.2	150.6	149.9		59.8	0.0	40.2	0.0	0.0	0.0	0.0	29.1
MR-48	150.6	152.1	151.3		87.7	0.0	12.3	0.0	0.0	0.0	0.0	18.8
MR-48	152.1	153.6	152.8		59.9	0.0	0.0	0.0	0.0	0.0	40.1	40.3
MR-48	153.6	155.0	154.3		94.6	0.0	5.4	0.0	0.0	0.0	0.0	15.4
MR-48	155.0	156.5	155.7		74.9	0.0	25.1	0.0	0.0	0.0	0.0	17.4
MR-48	156.5	158.0	157.2		70.0	0.0	30.0	0.0	0.0	0.0	0.0	33.3
MR-48	158.0	159.4	158.7		54.9	0.0	0.0	0.0	0.0	0.0	45.1	7.5
MR-48	159.4	160.9	160.1		34.4	0.0	65.6	0.0	0.0	0.0	0.0	12.2
MR-48	160.9	162.4	161.6		97.0	0.0	3.0	0.0	0.0	0.0	0.0	10.3
MR-48	162.4	163.8	163.1		28.9	0.0	71.1	0.0	0.0	0.0	0.0	29.7
MR-48	163.8	165.3	164.5		83.5	0.0	16.5	0.0	0.0	0.0	0.0	11.3
MR-48	165.3	166.8	166.0		78.5	0.0	0.0	0.0	0.0	0.0	21.5	3.3
MR-48	166.8	168.2	167.5		5.2	0.0	94.8	0.0	0.0	0.0	0.0	13.7
MR-48	168.2	169.6	168.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.5
MR-48	169.6	171.0	170.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	7.3
MR-48	171.0	172.5	171.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	34.8
MR-48	172.5	173.9	173.2		11.4	0.0	88.6	0.0	0.0	0.0	0.0	2.1
MR-48	173.9	175.3	174.6		66.6	0.0	33.4	0.0	0.0	0.0	0.0	21.5
MR-48	173.9	174.1	174.0	Fault	96.5	0.0	3.5	0.0	0.0	0.0	0.0	68.6
MR-48	175.3	176.8	176.1		78.0	0.0	0.0	0.0	0.0	0.0	22.0	0.9
MR-48	176.8	178.3	177.5		63.3	0.0	36.7	0.0	0.0	0.0	0.0	22.8
MR-48	178.3	179.8	179.0		99.4	0.0	0.6	0.0	0.0	0.0	0.0	19.7
MR-48	179.8	181.2	180.5		50.5	0.0	49.5	0.0	0.0	0.0	0.0	41.8
MR-48	181.2	182.6	181.9		6.6	0.0	93.4	0.0	0.0	0.0	0.0	4.0
MR-48	182.6	184.0	183.3		29.7	0.0	70.3	0.0	0.0	0.0	0.0	5.6
MR-48	184.0	185.5	184.8		20.4	0.0	79.6	0.0	0.0	0.0	0.0	9.4
MR-48	185.5	187.0	186.2		30.9	0.0	69.1	0.0	0.0	0.0	0.0	21.1
MR-48	187.0	188.5	187.7		31.3	0.0	68.7	0.0	0.0	0.0	0.0	43.9
MR-48	188.5	189.2	188.9		67.2	0.0	32.8	0.0	0.0	0.0	0.0	9.7
MR-48	189.2	191.3	190.3		31.4	0.0	0.0	68.6	0.0	0.0	0.0	11.2
MR-48	191.3	192.7	192.0		34.7	0.0	0.0	65.3	0.0	0.0	0.0	1.2
MR-48	192.7	194.2	193.5		54.3	0.0	0.0	45.7	0.0	0.0	0.0	5.1
MR-53	24.0	25.8	24.9		83.2	0.0	0.0	16.8	0.0	0.0	0.0	14.7
MR-53	25.8	27.6	26.7		98.1	0.0	0.0	1.9	0.0	0.0	0.0	20.9
MR-53	27.6	29.4	28.5		78.2	0.0	0.0	21.8	0.0	0.0	0.0	14.6
MR-53	29.4	30.8	30.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	9.9
MR-53	30.8	32.2	31.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1
MR-53	31.4	31.6	31.5	Bed	98.1	0.0	1.9	0.0	0.0	0.0	0.0	49.3
MR-53	32.2	33.7	33.0		92.4	0.0	0.0	7.6	0.0	0.0	0.0	16.8
MR-53	33.7	35.2	34.4		93.1	0.0	0.0	6.9	0.0	0.0	0.0	8.6
MR-53	35.2	36.7	35.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	20.8
MR-53	36.7	38.1	37.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	13.5
MR-53	38.1	39.6	38.8		92.1	0.0	0.0	7.9	0.0	0.0	0.0	13.6

Drill hole	Depth From (m)	Depth To (m)	Sample Depth (m)	Comments	Illite	Chlorite	Dickite	Kaolinite	Halloysite	Dravite	S-Kaolinite	Signal to Noise
MR-53	39.6	41.1	40.3		96.9	0.0	0.0	3.1	0.0	0.0	0.0	14.5
MR-53	41.1	42.5	41.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.1
MR-53	42.5	44.0	43.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	13.2
MR-53	42.6	42.8	42.7	Fault	100.0	0.0	0.0	0.0	0.0	0.0	0.0	48.4
MR-53	44.0	45.5	44.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	18.8
MR-53	45.5	46.9	46.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	19.7
MR-53	46.9	48.3	47.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	16.7
MR-53	48.3	49.7	49.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	16.3
MR-53	48.7	48.9	48.8	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	49.5
MR-53	49.7	51.2	50.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.3
MR-53	51.2	52.7	51.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	17.0
MR-53	52.7	54.2	53.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	24.1
MR-53	52.9	53.1	53.0	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.0
MR-53	54.2	55.6	54.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	17.1
MR-53	54.9	55.1	55.0	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.0
MR-53	55.6	57.1	56.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.5
MR-53	57.1	58.6	57.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	21.0
MR-53	58.6	60.0	59.3		92.7	0.0	0.0	7.3	0.0	0.0	0.0	15.8
MR-53	60.0	61.4	60.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.5
MR-53	61.4	62.8	62.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.6
MR-53	62.8	64.2	63.5		81.3	0.0	0.0	18.7	0.0	0.0	0.0	24.2
MR-53	64.2	65.6	64.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	13.6
MR-53	64.9	65.1	65.0	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.8
MR-53	65.6	67.0	66.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	18.8
MR-53	67.0	68.5	67.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.7
MR-53	68.5	69.9	69.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	17.8
MR-53	69.9	71.3	70.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	20.6
MR-53	71.3	72.8	72.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.7
MR-53	72.8	74.2	73.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.1
MR-53	74.2	75.6	74.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.9
MR-53	75.5	75.7	75.6	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.9
MR-53	75.6	77.1	76.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.6
MR-53	77.1	78.6	77.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	39.3
MR-53	82.3	82.5	82.4	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	38.6
MR-53	78.6	80.1	79.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.7
MR-53	80.1	81.5	80.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	23.9
MR-53	81.5	83.0	82.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	32.7
MR-53	83.0	84.5	83.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	41.7
MR-53	84.5	85.9	85.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.6
MR-53	85.9	87.3	86.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.7
MR-53	87.3	88.7	88.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.8
MR-53	87.9	88.1	88.0	Bed	92.0	0.0	8.0	0.0	0.0	0.0	0.0	58.4
MR-53	88.7	90.2	89.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	32.5
MR-53	90.2	91.7	90.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.4
MR-53	91.7	93.2	92.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	19.9
MR-53	93.2	94.6	93.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	15.6
MR-53	94.6	96.0	95.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.9
MR-53	96.0	97.4	96.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.3
MR-53	97.4	98.8	98.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	18.8
MR-53	98.8	100.2	99.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.4
MR-53	100.2	101.6	100.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.6
MR-53	101.6	103.0	102.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	22.1
MR-53	103.0	104.5	103.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	28.4
MR-53	104.5	106.0	105.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.5
MR-53	106.0	107.5	106.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.7
MR-53	107.5	108.9	108.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.6
MR-53	108.9	110.3	109.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.0
MR-53	110.3	111.7	111.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	42.5
MR-53	111.7	113.1	112.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	34.2
MR-53	113.1	114.5	113.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.6
MR-53	114.5	116.0	115.3		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.6
MR-53	115.5	115.7	115.6	Fault	99.4	0.0	0.6	0.0	0.0	0.0	0.0	44.0
MR-53	116.0	117.5	116.7		100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.5
MR-53	116.3	116.5	116.4	Fault	96.6	0.0	0.0	3.4	0.0	0.0	0.0	25.0
MR-53	117.5	119.0	118.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	33.2
MR-53	119.0	120.4	119.7		64.1	0.0	0.0	35.9	0.0	0.0	0.0	35.6
MR-53	119.8	120.0	119.9	Fault	89.5	0.0	10.5	0.0	0.0	0.0	0.0	46.9
MR-53	120.4	121.8	121.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.7
MR-53	121.8	123.2	122.5		98.4	0.0	0.0	1.6	0.0	0.0	0.0	23.5
MR-53	123.2	124.7	124.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	23.0
MR-53	124.7	126.1	125.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.9
MR-53	125.1	125.3	125.2	Fault	91.8	0.0	8.2	0.0	0.0	0.0	0.0	32.8
MR-53	126.1	127.5	126.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.8
MR-53	127.5	128.9	128.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	42.0
MR-53	128.9	130.3	129.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	37.0
MR-53	130.3	131.7	131.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	37.8
MR-53	131.1	131.3	131.2	Fault	80.8	0.0	19.2	0.0	0.0	0.0	0.0	42.3
MR-53	131.7	133.1	132.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	35.9
MR-53	133.1	134.4	133.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	29.8

Drill hole	Depth From (m)	Depth To (m)	Sample Depth (m)	Comments	Illite	Chlorite	Dickite	Kaolinite	Halloysite	Dravite	S-Kaolinite	Signal to Noise
MR-53	134.4	135.7	135.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	41.8
MR-53	134.9	135.1	135.0	Fault	89.7	0.0	10.3	0.0	0.0	0.0	0.0	42.6
MR-53	135.7	137.1	136.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	19.1
MR-53	137.1	138.6	137.8		97.1	0.0	0.0	2.9	0.0	0.0	0.0	16.1
MR-53	138.1	138.3	138.2	Bed	100.0	0.0	0.0	0.0	0.0	0.0	0.0	31.5
MR-53	138.6	140.1	139.3		84.4	0.0	0.0	15.6	0.0	0.0	0.0	15.1
MR-53	140.1	141.5	140.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.6
MR-53	141.5	142.9	142.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	45.5
MR-53	142.9	144.3	143.6		99.2	0.0	0.8	0.0	0.0	0.0	0.0	45.5
MR-53	144.4	145.8	145.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	36.3
MR-53	144.6	144.8	144.7	Fault	15.6	0.0	0.0	0.0	0.0	0.0	84.4	25.0
MR-53	145.8	147.2	146.5		100.0	0.0	0.0	0.0	0.0	0.0	0.0	19.0
MR-53	147.2	148.6	147.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	39.5
MR-53	148.6	150.1	149.4		100.0	0.0	0.0	0.0	0.0	0.0	0.0	37.3
MR-53	150.1	151.6	150.8		98.2	0.0	1.8	0.0	0.0	0.0	0.0	29.3
MR-53	151.6	153.1	152.3		96.4	0.0	3.6	0.0	0.0	0.0	0.0	45.5
MR-53	153.1	154.5	153.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0
MR-53	154.5	155.9	155.2		98.4	0.0	1.6	0.0	0.0	0.0	0.0	22.2
MR-53	155.9	157.3	156.6		100.0	0.0	0.0	0.0	0.0	0.0	0.0	38.1
MR-53	157.3	158.8	158.1		84.5	0.0	15.5	0.0	0.0	0.0	0.0	54.9
MR-53	158.8	160.2	159.5		99.3	0.0	0.7	0.0	0.0	0.0	0.0	36.7
MR-53	159.4	159.6	159.5	Fault	92.4	0.0	7.6	0.0	0.0	0.0	0.0	71.4
MR-53	160.2	161.6	160.9		100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.8
MR-53	161.6	163.1	162.4		93.1	0.0	6.9	0.0	0.0	0.0	0.0	52.6
MR-53	163.1	164.5	163.8		100.0	0.0	0.0	0.0	0.0	0.0	0.0	26.0
MR-53	164.5	165.9	165.2		100.0	0.0	0.0	0.0	0.0	0.0	0.0	42.8
MR-53	165.9	167.4	166.7		98.3	0.0	1.7	0.0	0.0	0.0	0.0	39.1
MR-53	167.4	168.8	168.1		100.0	0.0	0.0	0.0	0.0	0.0	0.0	35.7
MR-53	169.5	169.7	169.6	Fault	89.4	0.0	10.6	0.0	0.0	0.0	0.0	39.9
MR-53	168.8	170.2	169.5		93.0	0.0	7.0	0.0	0.0	0.0	0.0	38.4
MR-53	170.2	171.7	171.0		100.0	0.0	0.0	0.0	0.0	0.0	0.0	10.6
MR-53	171.7	173.2	172.4		93.7	0.0	0.0	6.3	0.0	0.0	0.0	9.8
MR-53	171.8	172.0	171.9	Fault	67.0	0.0	0.0	33.0	0.0	0.0	0.0	27.5
MR-53	173.2	174.7	173.9		44.8	0.0	0.0	55.2	0.0	0.0	0.0	8.0
MR-53	174.7	176.1	175.4		94.7	0.0	0.0	5.3	0.0	0.0	0.0	1.2
MR-53	176.1	177.6	176.8		57.0	0.0	43.0	0.0	0.0	0.0	0.0	29.3
MR-53	177.6	179.1	178.3		58.9	0.0	41.1	0.0	0.0	0.0	0.0	8.7
MR-53	178.6	178.8	178.7	Bed	97.6	0.0	0.0	2.4	0.0	0.0	0.0	9.6
MR-53	179.1	180.5	179.8		62.6	0.0	37.4	0.0	0.0	0.0	0.0	17.8
MR-53	180.5	181.2	181.2		80.7	0.0	19.3	0.0	0.0	0.0	0.0	30.4
MR-53	181.2	183.4	182.7		5.4	71.9	0.0	22.7	0.0	0.0	0.0	4.9
MR-53	183.4	184.8	184.1		0.0	90.3	0.0	9.7	0.0	0.0	0.0	9.0

APPENDIX 10 – PIMA logs

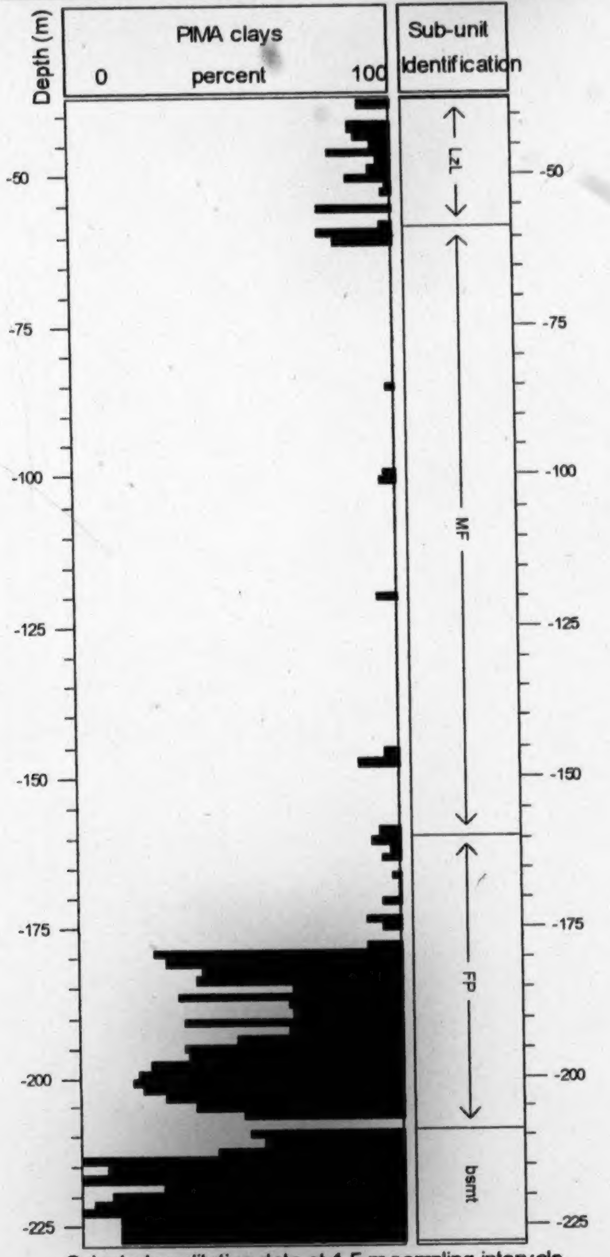
The following eight logs containing PIMA analysis were plotted using Rockware's Logplot package. The colours within the logs correspond to the following legend below.

PIMA Legend:

⬜ **Illite**
⬛ **Chlorite**
⬜ **Dickite**
⬜ **Kaolinite**
⬛ **Dravite**
⬛ **S-Kaolinite**

Diamond Drill Hole Identification: **MR-29** **EXTECH IV**

Longitude (83)	-110.6590896
Latitude (83)	58.20440649
Unconformity	180.9m
Depth of Hole	235.6m
Orientaion	270/-60
Drilling year	1987
Property	Maybelle
Compilation date	20/06/03
Data Compilation	Barb Kupsch

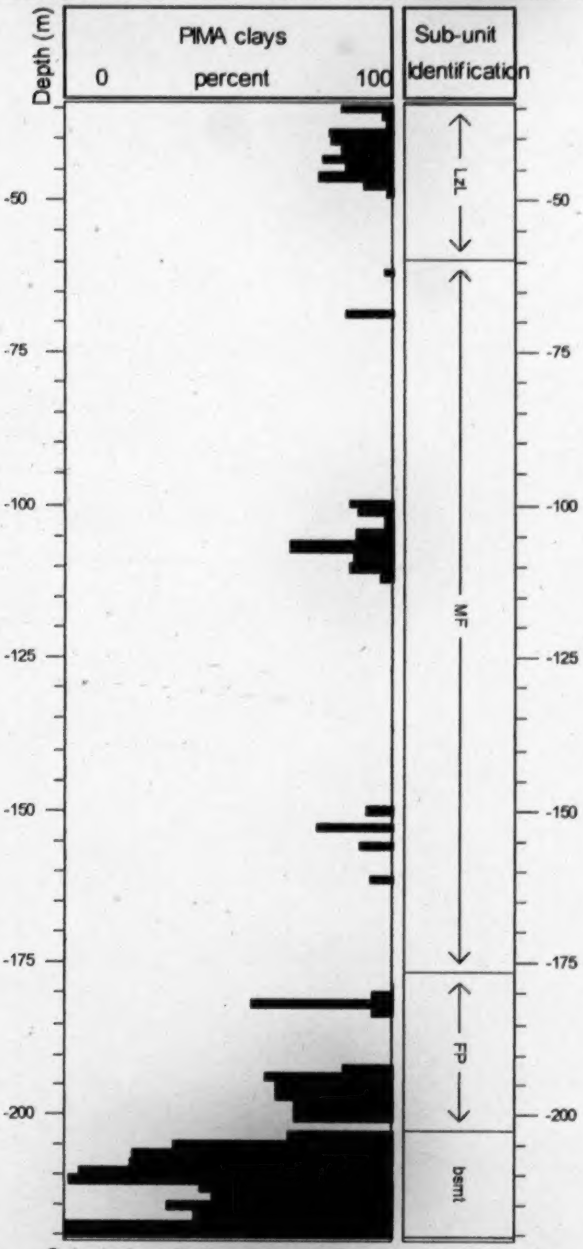


Selected qualitative data at 1.5 m sampling intervals

EXTECH IV DDH MR-29

Diamond Drill Hole Identification: **MR-34** **EXTECH IV**

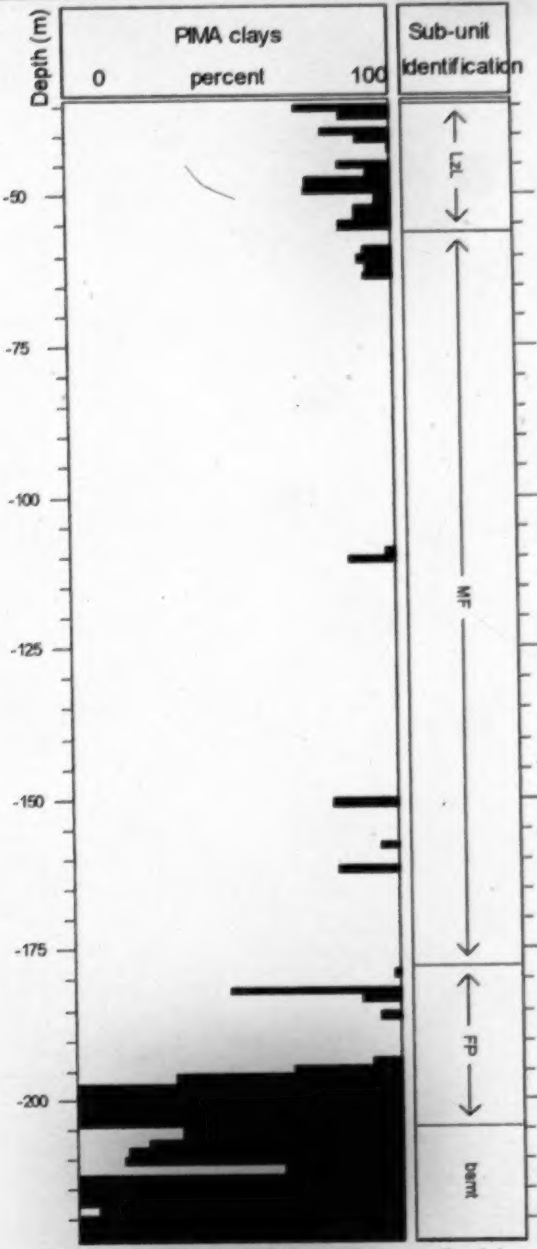
Longitude (83)	-110.6587956
Latitude (83)	58.20432920
Unconformity	190.6m
Depth of Hole	227.4m
Orientaion	270/-70
Drilling year	1988
Property	Maybelle
Compilation date	20/06/03
Data Compilation	Barb Kupsch



Selected qualitative data at 1.5 m sampling intervals

Diamond Drill Hole Identification: **MR-39** **EXTECH IV**

Longitude (83)	-110.6586802
Latitude (83)	58.20433726
Unconformity	193.4m
Depth of Hole	237.3m
Orientaion	270/-75
Drilling year	1988
Property	Maybelle
Compilation date	20/06/03
Data Compilation	Barb Kupsch



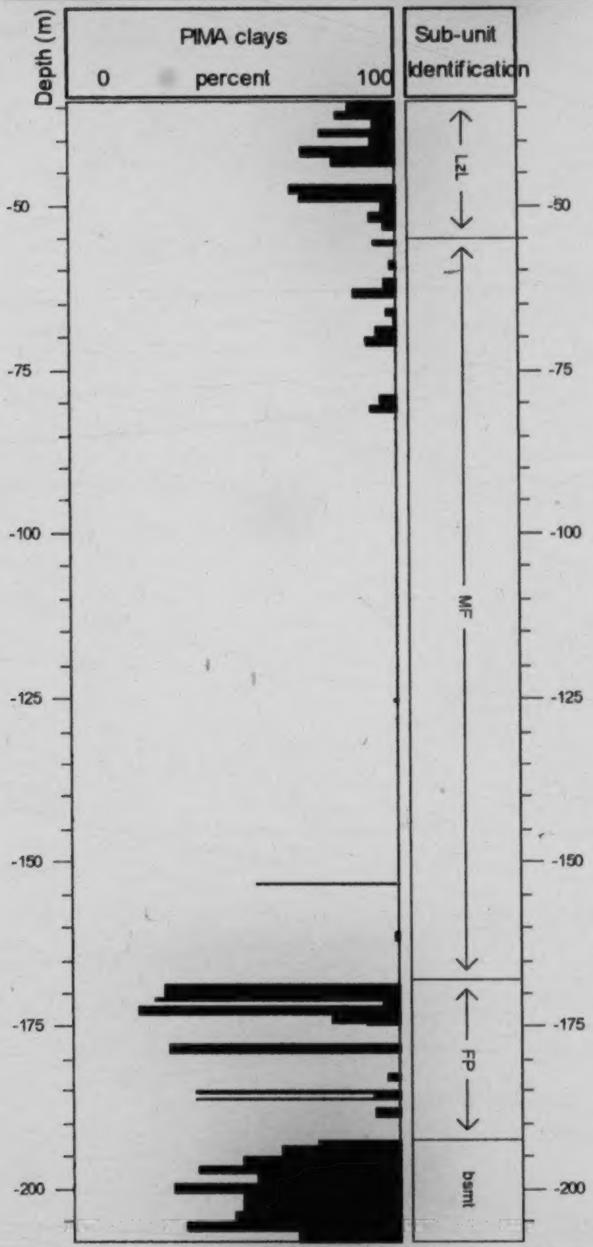
Selected qualitative data at 1.5 m sampling intervals

EXTECH IV

DDH MR-39

Diamond Drill Hole Identification: **MR-40** **EXTECH IV**

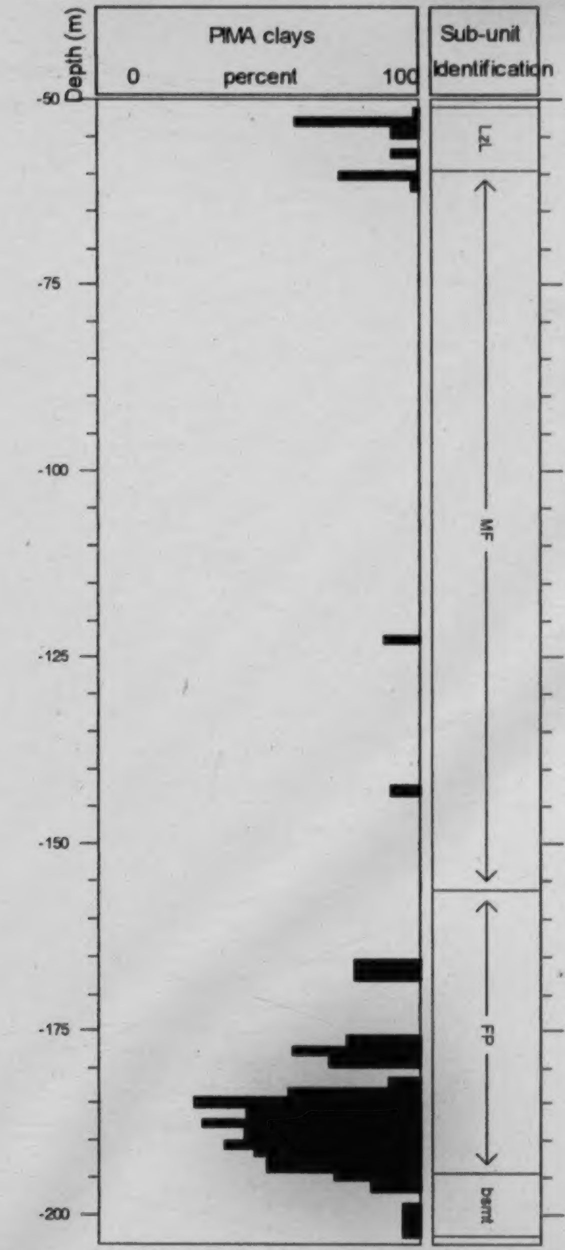
Longitude (83)	-110.6586802
Latitude (83)	58.20433726
Unconformity	189.5m
Depth of Hole	256.1m
Orientaion	270/-80
Drilling year	1988
Property	Maybelle
Compilation date	20/06/03
Data Compilation	Barb Kupsch



Selected qualitative data at 1.5 m sampling intervals

Diamond Drill Hole Identification: **MR-41** **EXTECH IV**

Longitude (83)	-110.6598864
Latitude (83)	58.20339549
Unconformity	194.4m
Depth of Hole	220.0m
Orientaion	-/-90
Drilling year	1988
Property	Maybelle
Compilation date	20/06/03
Data Compilation	Barb Kupsch



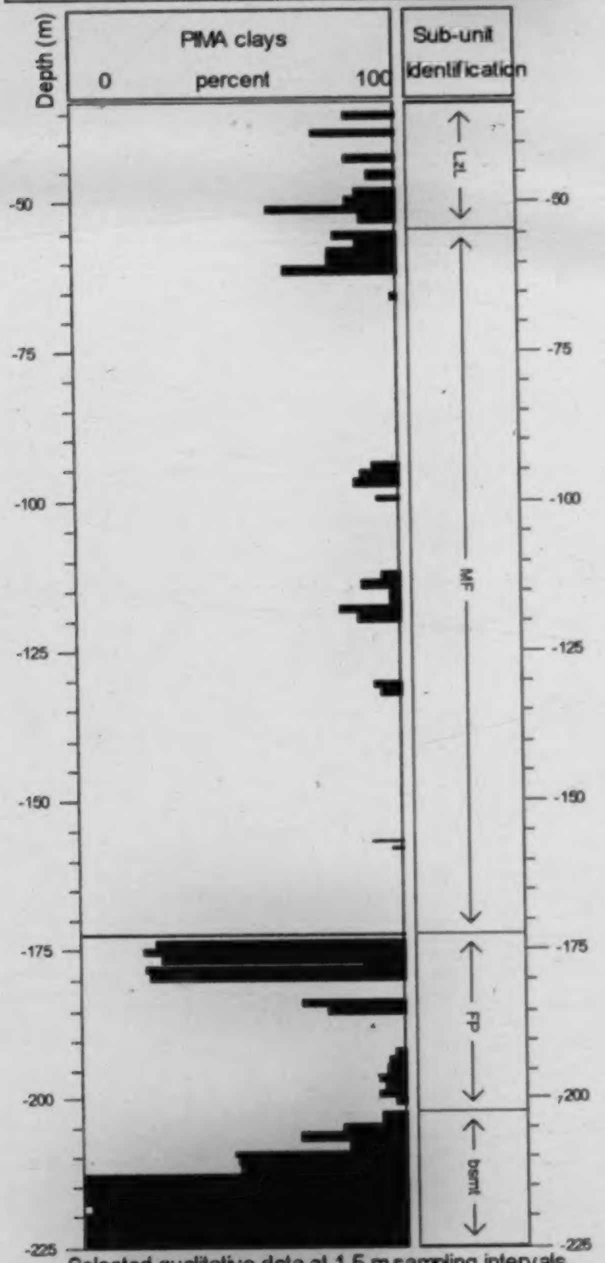
Selected qualitative data at 1.5 m sampling intervals

EXTECH IV

DDH MR-41

Diamond Drill Hole Identification: **MR-43** **EXTECH IV**

Longitude (83)	-110.6586802
Latitude (83)	58.20433726
Unconformity	195.8m
Depth of Hole	240.1m
Orientaion	278/-75.5
Drilling year	1988
Property	Maybelle
Compilation date	20/06/03
Data Compilation	Barb Kupsch

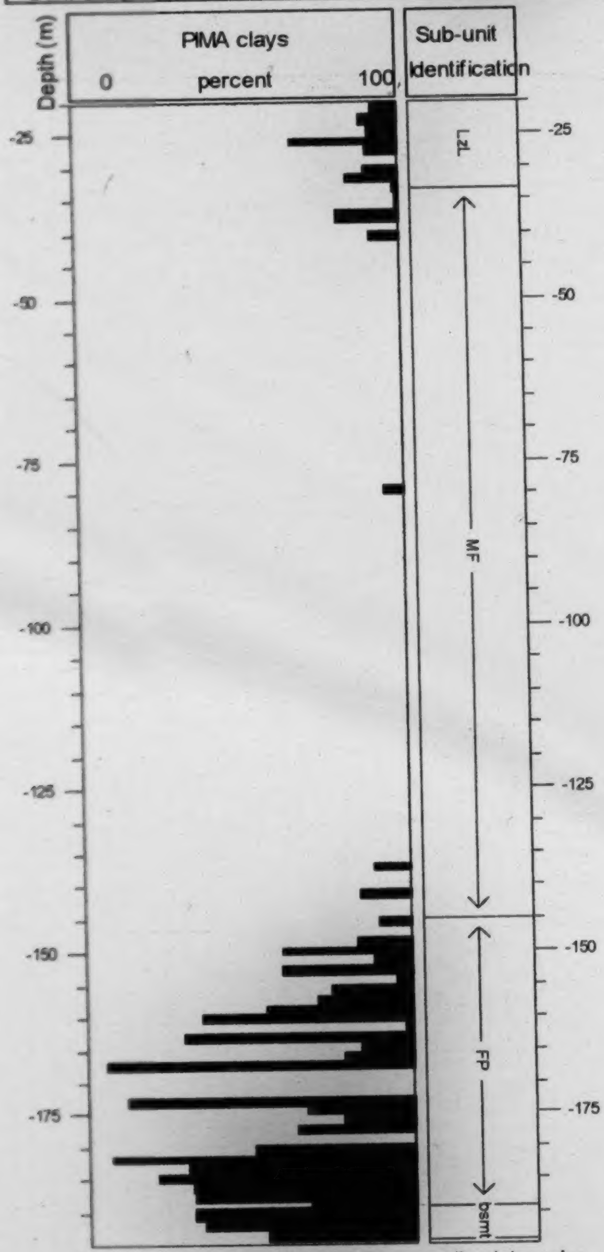


Selected qualitative data at 1.5 m sampling intervals

EXTECH IV DDH MR-43

Diamond Drill Hole Identification: **MR-48** **EXTECH IV**

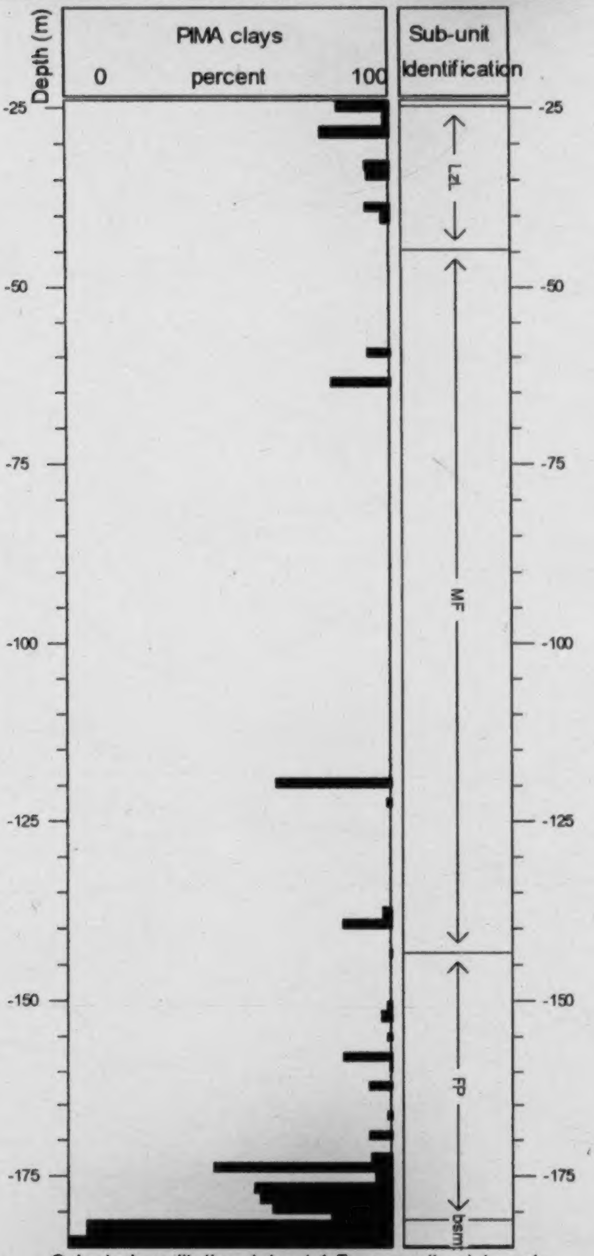
Longitude (83)	-110.6612662
Latitude (83)	58.20546426
Unconformity	182.8m
Depth of Hole	216.4m
Orientaion	90/-75
Drilling year	1988
Property	Maybelle
Compilation date	20/06/03
Data Compilation	Barb Kupsch



Selected qualitative data at 1.5 m sampling intervals

Diamond Drill Hole Identification: **MR-53** **EXTECH IV**

Longitude (83)	-110.6588356
Latitude (83)	58.19797963
Unconformity	166.8m
Depth of Hole	211.7m
Orientaion	90/-67
Drilling year	1988
Property	Maybelle
Compilation date	20/06/03
Data Compilation	Barb Kupsch



Selected qualitative data at 1.5 m sampling intervals

EXTECH IV DDH MR-53